The magazine for AUSTRALIAN Amateurs

November 2003
Volume 71 No 11

Amateur Radio

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Rob VK3EK does it twice

More about
The EH Dipole Antenna
by Lloyd Butler VK5BR

Ross A Hull Memorial VHF Trophy

2003/04 Contest begins Boxing Day

Rules in this issue

FINAL IN 80M SNIFFER SERIES

An Alignment Transmitter or 80m Mini-Fox
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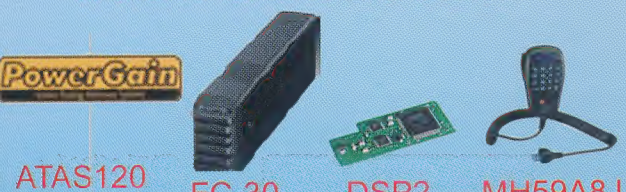

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General

ACA seeks Hams' feedback 11
Colwyn Low VK5UE
ICOM Australia celebrates 20th anniversary 12
Jim Linton VK3PC
Ross A. Hull VHF Trophy winner 2003 encourages others to give it a go 17
Jim Linton VK3PC
Rekindling the magic 19
Michael J. Charteris VK4IQ
QE46 Cape Hauy VHF DXpedition 25
Rex Moncur VK7MO

Technical

The EH dipole antenna 4
Lloyd Butler VK5BR
An alignment transmitter or 80m mini-fox 13
Bryan Ackerly VK3YNG
Balanced line antenna tuner (Technical Abstracts) 21
Gil Sones VK3AUI
Adding a crowbar notes (Technical Abstracts) 21
Gil Sones VK3AUI
6146 replacements (Technical Abstracts) 29
Gil Sones VK3AUI
Compact fluorescent lamps (Technical Abstracts) 29
Gil Sones VK3AUI

Columns

ALARA 34
AMSAT 36
ARDF 51
Beyond Our Shores 40
Contests 41
Club News 18, 37
WIA Division News
VK1 News 30
VK2 News 30
VK3 News 31
VK7 News 32
Editor's Comment 2
Education page 22
Hamads 54
Ham Shack Computers 38
HF Predictions 48
Silent Key 37
Spotlight on SWLing 27
Technical Abstracts 21, 29
VHF UHF an expanding world 52
WIA Comment 3
WIA Division Directory 56
WIA Federal Directory 2

Our Cover this month

The latest winner of the Ross A. Hull VHF Trophy, Rob Ashlin VK3EK of Bairnsdale in eastern Victoria. He achieved the top score over seven days of activity, with runner-up Glenn McNeil VK4TZL, who took out the two day section. Both have now won the trophy twice. See story on page 17

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editorial Comment

Colwyn Low VK5UE

A Claytons retirement

The ACA Consultation period for the review of the Amateur Service has ended. I hope you all made your views known in some way. The WIA response is very complete and seems to cover all comment that I have heard on the proposal.

I attended the ACA meeting in Adelaide and have had several communications from Amateurs on the proposals sent to me. I found a great deal of common ground. There is a report on page 11.

This time of year has become very busy for me. JOTA, Oceania Contest, Spring VHF Field Day, WICEN support of the Classic Adelaide Rally and the Bumper December AR to prepare. On top of that my "Beetle" Radio Shack needs attention so that I can travel and operate at some of these events. There are times I think I had more time before I retired!

Contests

I find interesting not so much to go into the solid 24 or 48 hours but just to make a few station changes see how they work and get that rush when some weak station replies first time after the "Killowatt Alley" operators have ignored me. Then there is the 'almost contact' where there is just one letter in the callsign which no phonetic alphabet can distinguish. Working in the CQWWDX Phone section I came across this several times. Seems part of the problem was mine, turned up the mic. gain, put on the processor and distorted my signal. We should check these things with a friend before we push too hard. However it is good to find the FT-101E is still doing a good job after all these 20 plus years. You will find some Yaesu nostalgia in this edition on pages 12 and 19.

The December AR will have 64 pages and the January February combined issue will be available late January 2004

Bill Rice VK3ABP retires from AR

Those of you who read every word in AR will notice that Bill Rice has decided the time to retire from the Amateur Radio Magazine team has come. The VK3 notes make mention of this and I as Editor wish to express the thanks of the Amateur Radio production team to Bill for his many years of service to the Amateur Radio Service in Australia and the AR Magazine in particular

- Bill's connection with Amateur Radio magazine follows: -
- Publications Committee Member March 1972 to June 1973.
- Technical Editor July 1973 to June 1984.
- Editor July 1984 to December 1999.
- Publications Committee Member January 2000
- Resigned from Committee August 2003.
- Appointed Life Member WIA 2001.

Bill, your presence at meetings will be missed but we know you will still be proof reading the published magazine. Enjoy your retirement Bill

73 Colwyn and the Publications Committee of Amateur Radio Magazine.

Ernie Hocking VK1LK
Email: president@wia.org.au
PO Box 691, Dickson ACT 2602

More than just a hobby

Federal WIA activity has remained high over the last month. The main issues being dealt were the Federal WIA response to the ACA discussion paper, discussions with the ACA on emergency service requirements in VK3, and the ever-increasing threat of the introduction of Broadband Power Line technology into Australia.

Finally work on this year's call book has been in full swing and we hope to have it ready for distribution in early November. I would like to say a special thank you to all the members of the team that have helped to put the call book together this year – Brenda Edmonds, John Martin, Ian Godsil, Mal Johnson, Robert Broomhead, and of course John and Gill Nieman, the team at Newsletters Unlimited. I am sure that you will all agree that the new innovations in this year's edition will make it an essential part of ever amateur's shack.

ACA discussion paper

The overall response to the issuing of the discussion paper by the ACA has been incredible. I have personally seen tens of submissions by individuals commenting on a single issue, through to groups who have got together to address every issue canvassed in the ACA paper. A number of people have raised concerns that the diverse range of views and responses made to the ACA indicate a split in the amateur community. In response to this I can only sit here in Canberra and cast my eye over towards Parliament in order to appreciate that diversity of opinion is exactly what makes the administration of amateur radio a democratic process. To me, of greater importance than the diverse views being expressed is the incredible amount of energy and intellectual effort that I have seen over the last months. By the time that you receive this issue of AR the Federal WIA response will hopefully have been well circulated by the WIA divisions. For those of you who have not seen the response I have arranged for a copy to be placed on the Federal WIA web site.

...of greater importance than the diverse views being expressed is the incredible amount of energy and intellectual effort that I have seen over the last months

All this activity has for me further reinforced the need to take the amateur radio message and shout about it from the tallest hill in order to bring its benefits to the attention of as many people as possible. Amateur radio is so much more than just a hobby and all of us should sell it as such. This observation was further reinforced recently whilst talking to a Government scientist. In the conversation it was clear that many in the scientific and technical community understood and appreciated that amateur radio has a lot to offer society. I personally hope that whatever the detailed outcomes of the ACA review entails, that the reforms lead to a situation where we can revitalise amateur radio in order to bring this great hobby to a much wider audience.

Further news on the 70cm in VK3

Recently I alerted you to moves to seek a reallocation of spectrum in the 420-430 MHz portion of the 70cm band within Victoria, for use by police and emergency services. This requirement for spectrum is being driven by the need to have an effective communications network in place in Victoria in time for the next Commonwealth Games. This is especially important given the high profile of the Commonwealth Games these days with the ever-present threat of terrorism.

The WIA has been working with the ACA, the Victorian authorities, and other users of the spectrum in order to attempt to minimise the impact of the proposal on the amateur radio community in Victoria. These negotiations are still continuing and the WIA ACA liaison team will make an announcement of the full impact once all the details have been worked out. In terms of timings at this stage it is expected that the new systems will start to be deployed in Victoria from 1 July 2004.

Broadband Power Line issues

Broadband Power Line (BPL) continues to be a matter of concern. The release of the ACA paper on BPL (available from the ACA web site www.aca.gov.au) sets out the issues associated with the implementation of BPL here in Australia and it is definitely worth downloading and reading. At the same time as developments are progressing here in Australia, the BPL issue is also running hot in the US with the ARRL fighting hard to ensure that such technology does not have a negative impact on the US amateur radio community or for that matter other spectrum users.

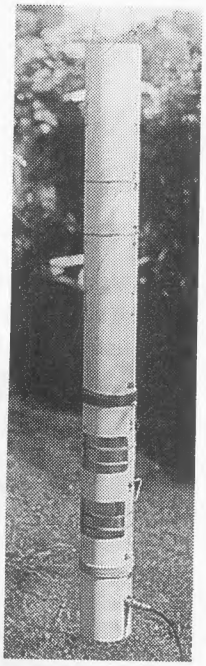
A study group has been formed here in Australia to track developments and act as an industry lobby group to raise awareness of the potential interference issues that BPL can pose to all users of the HF spectrum. If anyone is interested in joining the study group they should contact me and I can then put you in touch with the group directly.

Time is against me so I will have to bring things to a close and wish you all 73s for now. I look forward to hearing your comments, either directly or via the divisions. All the best in amateur radio.

Ernie Hocking VK1LK

The EH dipole antenna

More information on how it works and how it has performed



(A follow up from the article published in the April 2003 issue of AR)

Lloyd Butler VK5BR

In the previous article, I described how EH Dipole Antennas could be constructed for 20 and 40 metre using recycled tinned plated cans mounted on PVC plumbing tube. There are several forms of these antennas introduced by the original inventor Ted Hart but my earlier article (and this one which follows) refers essentially to the type which he has called the L+L, defined by the method of matching.

A lot of discussion has recently taken place on the principles of operation concerning the EH antenna and whether the principles which had been assumed were quite on target. Based on a lot of thought and various measurements carried out, I present some theory on how I believe this type of EH Antenna works.

In the process of experimentation it has become evident that a considerable amount of RF current runs longitudinally down the coax feeder line causing radiation directly from that feeder. In fact some opponents of the CFA and EH mode theory have strenuously argued that this is the main form of radiation. However the antenna does not need this form of radiation and it is desirable to inhibit it. This allows concentration of all the power to the EH operation, it prevents undesirable interaction between the coax and the antenna tuning, it prevents excessive RF signal getting into the radio shack and it prevents power being absorbed in the ground or objects close to the feeder.

In following paragraphs, I will describe how this longitudinal current down the coax can be monitored and how traps can be fitted to inhibit this current. Also described are the results achieved having fitted these traps.

Some background

To achieve Electromagnetic (EM) radiation, we require the Electric (E) and Magnetic (H) fields to be at right angles in the same plane and in time phase. The EH antenna is designed to achieve this in much smaller space than the well established Hertz antenna.

In brief, the antenna consists of two tubular plates with natural capacity between them. The E field is generated by voltage across the plates and it has been assumed that the H field is generated by the displacement current in the dielectric between the two elements. (The fields intersecting at right angles are shown in Figure 1).

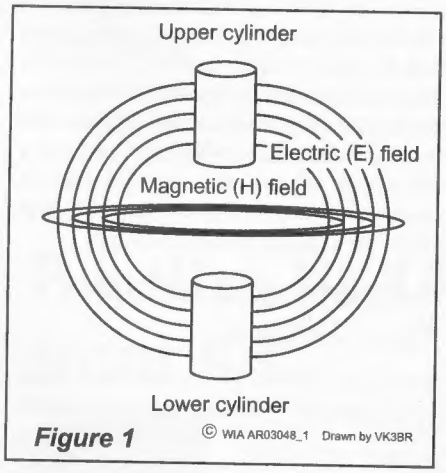


Figure 1. Fields generated between the two cylinders

Before proceeding further, I think we should discuss the concept of displacement current and a little on the generation of the Electric (E) and Magnetic (H) fields.

An H field is generated by a changing electric current in a conductor but also from a virtual changing current which Maxwell called Displacement Current and which is defined as the rate of change of an electric field. As the rate of change of the E potential is 90 degrees out of phase with that potential, so also is the displacement current.

This displacement current is assumed to occur in free space but if there are two metal plates forming a capacitance with a dielectric, then dielectric displacement current also occurs. (Dielectric displacement is really the displacement of electrons or distortion of their orbits around the atoms in the dielectric). According to my faithful old Admiralty Handbook, there is a total displacement current, the sum of these two.

So we can have an H field developed from either a changing current in a conductor or a displacement current produced by an E field.

The theory

Ted Hart discovered that if he introduced a phase shift (in fact 90 degrees) into the circuit feeding the EH dipole cylinders, the radiation dramatically increased, resulting in increased series radiation resistance (or equivalent reduction in the equivalent parallel radiation resistance). This was incorporated into reactive networks designed to match the new reflected antenna impedance to a 50 ohm source. The typical L+L matching network is shown in figure 2.

Initial reaction was that this phase shift somehow offset the phase of the input current (and hence the displacement current) relative to the voltage across the plates such that the displacement current (and hence the H field) was in phase with plate voltage

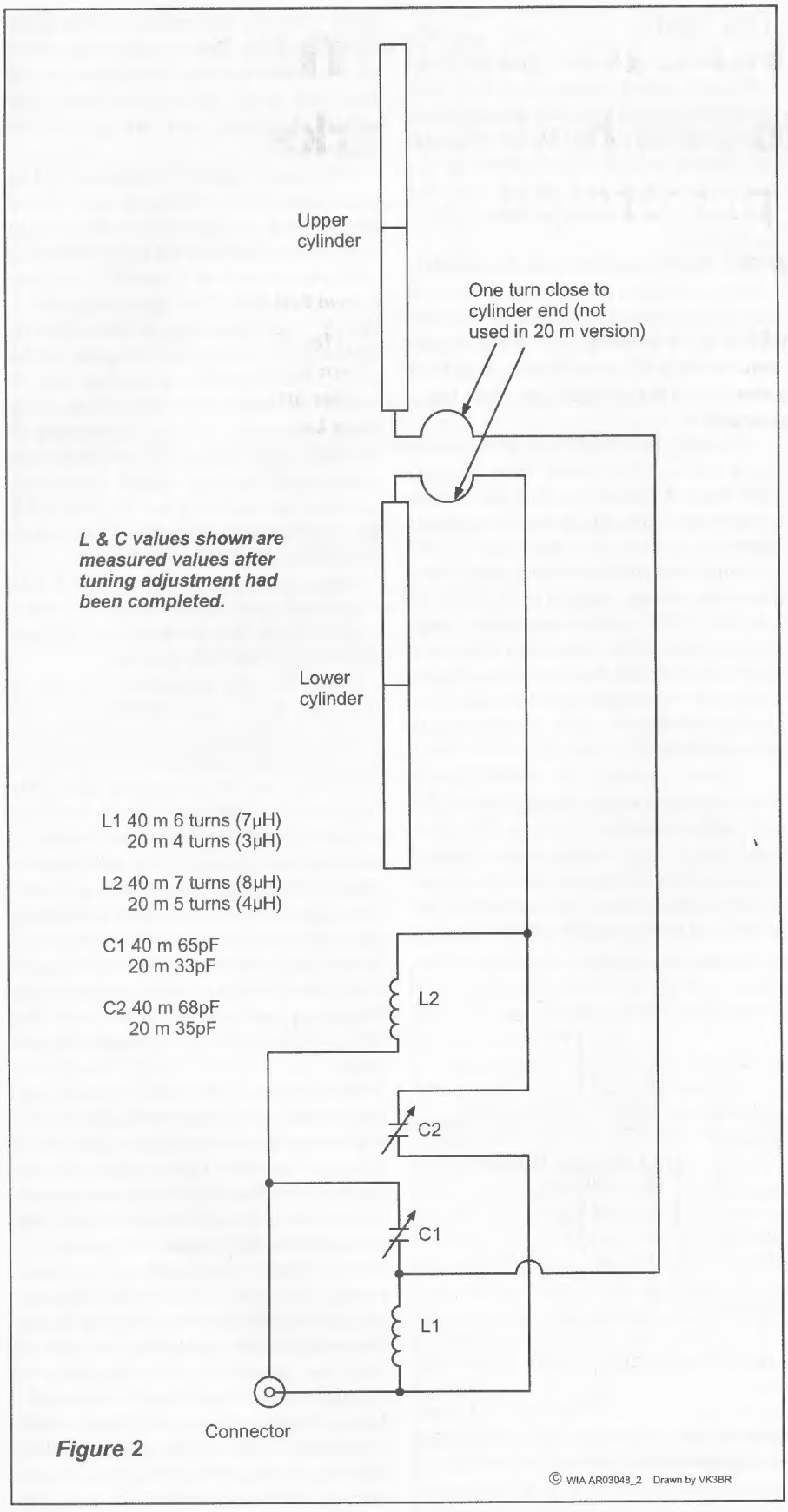

Upper cylinder
One turn close to cylinder end (not used in 20 m version)
L & C values shown are measured values after tuning adjustment had been completed.
Lower cylinder
L1 40 m 6 turns (7µH)
20 m 4 turns (3µH)
L2 40 m 7 turns (8µH)
20 m 5 turns (4µH)
C1 40 m 65pF
20 m 33pF
C2 40 m 68pF
20 m 35pF
L2
C2
C1
L1
Connector
© WIA AR03048_2 Drawn by VK3BR

Figure 2

Figure 2 Circuit diagram

(and hence the E field). However this theory seemed to defy some basic electrical principles concerning the antenna input as a two terminal impedance. The only way to alter the characteristics of that impedance was to alter something inside the impedance and not the characteristics of something feeding signal to it.

Steve Galastri stressed to me that you can't consider the dipole antenna in isolation and you must refer it and its phase shift network back to the coax shield input as a reference. So here is a third terminal which is important to the operation of the antenna.

As a result it came to me that there must not only be an electric field between the two cylinders of the dipole but there must be some sort of an electric field between each cylinder and the reference coax shield. In Steve's version of the dipole, he uses a differential balanced matching network which also performs the phase shift. I assumed that in the longitudinal or common mode, that phase shift would be vastly different to that applied to the balanced dipole input. As such, we could have displacement current produced by the longitudinal generated E field partly in phase with the E field from the balanced dipole. In turn, this displacement would generate an H field also partly in phase with the dipole E field to achieve enhanced radiation. Adjustment of the amount of phase shift could well put the second H field precisely in phase with the dipole E field as desired.

At this point I had better clarify what I mean by the longitudinal mode signal. A longitudinal or common mode signal in a balanced circuit is one in which the current in both legs is the same and in phase as distinct from a differential mode signal in which the currents in each leg are in opposite phase. For an example refer to figure 3. In this we face each end of a balanced circuit with a centre tapped transformer with their centre taps joined to earth. The current (I_D) in the differential mode resulting from voltage source (V_D) flows in opposite directions in the two connecting legs. If a potential (V_L) exists between the two earth points, current (I_L) will flow in each leg between the two earth points but in the same direction. This is called a longitudinal or common mode current. If the circuit is perfectly balanced, no interaction can occur

between the signal coupled via the transformer in the differential mode and the signal in the longitudinal or common mode.

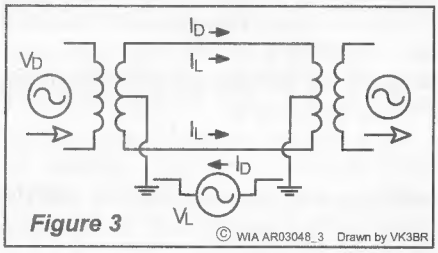


Figure 3

Figure 3. Longitudinal current

In the EH antenna we have an unbalanced to balanced matching network and in this, I refer to the Longitudinal or Common Mode potential as a voltage between the electrical centre of the two dipole cylinder connections and the reference zero point of the coax shield. This is equivalent to considering the voltage of the two dipole cylinders in parallel against zero reference. Now refer to figure 4. Vin is the voltage at the 50 ohm coax output correctly loaded by 50 ohm resistance, V_D is the output voltage across the dipole cylinders and V_L is the longitudinal voltage. For the theory I have outlined, we must find 90 degrees phase shift between V_L and V_D.

The tests

With the theory in hand, I set out to see if I could detect evidence of that field and the required phasing arrangement. Tests were carried out on my 40 metre EH dipole which I described in the previous article and which uses the balanced type matching network shown in figure 2.

The first operation was to carefully adjust the dipole tuning using about 20 watt of power and adjusting for an SWR close to 1:1 with the SWR meter connected in the coax feeder as close as possible to the antenna 50 ohm input connector.

Checking the field from the dipoles using a small fluorescent lamp showed even field distribution from the dipole cylinders. The field was strongest adjacent to the cylinders but it also extended lower adjacent to the matching elements getting weaker as the bottom of the PVC tube assembly was approached. There was certainly some field lower down than the main dipole field that wasn't above it. I thought this might be due to the longitudinal generated field.

I then turned to some phase measurements using the dual trace CRO and high impedance probes. This was not so easy. The trouble is that when a probe is placed near or on one of the dipole connections, the antenna is de-tuned and matching adjustment must be reset. Also the transmitter power must be reduced to a very low level otherwise the test leads and the test equipment get flooded with induction from the radiated signal and can give false readings.

Of course I couldn't measure (V_L) as the longitudinal voltage is at a virtual centre but I could measure the voltage from each cylinder plate to the reference coax zero, shown as V_{p1} and V_{p2} in figure 4. In actual fact, V_L is the average of V_{p1} and V_{p2}. In measuring at these points, de-tuning is reduced by coupling to the CRO high impedance probes via 10 kohm resistors. However, even with these in circuit, it is still necessary to initially raise the power just sufficient to get a reading on the SWR meter and readjust the matching for 1:1 SWR with the probes connected. The power is then dropped for the measurement.

With a probe on each cylinder it was observed that the voltage at each cylinder was nearly equal and slightly out of phase with each other.

Using the gain adjustment on one of the CRO trace amplifier inputs, the traces were adjusted as close as possible for equal trace amplitude. One trace is then reversed in phase and the CRO switched to the add mode so that cancelling occurs of the two traces. A residual waveform is seen and the gain of one of the amplifiers is fine adjusted for a residual minimum level indicating precise equal setting of the two trace amplitudes. By doing this the signals from the plates to reference zero are balanced out leaving a trace of the differential signal (V_D) across the dipole pair.

Now here is the important observation. The phase of the differential signal was then compared to that of the signals on the individual dipole cylinders to show that there was a phase difference close to 90 degrees. Taking the average of these, we get 90 degrees.

The high longitudinal voltage measured must certainly generate an electric (E) field at 90 degrees phase difference to the dipole field. An H field must be generated from the rate of change of the E field (or in Maxwell's terms, the Displacement Current). This is a further shift of 90 degrees putting the longitudinal H field in phase (or in anti-phase) with the E field from the dipole. So this satisfies the requirements of the Poynting theorem.

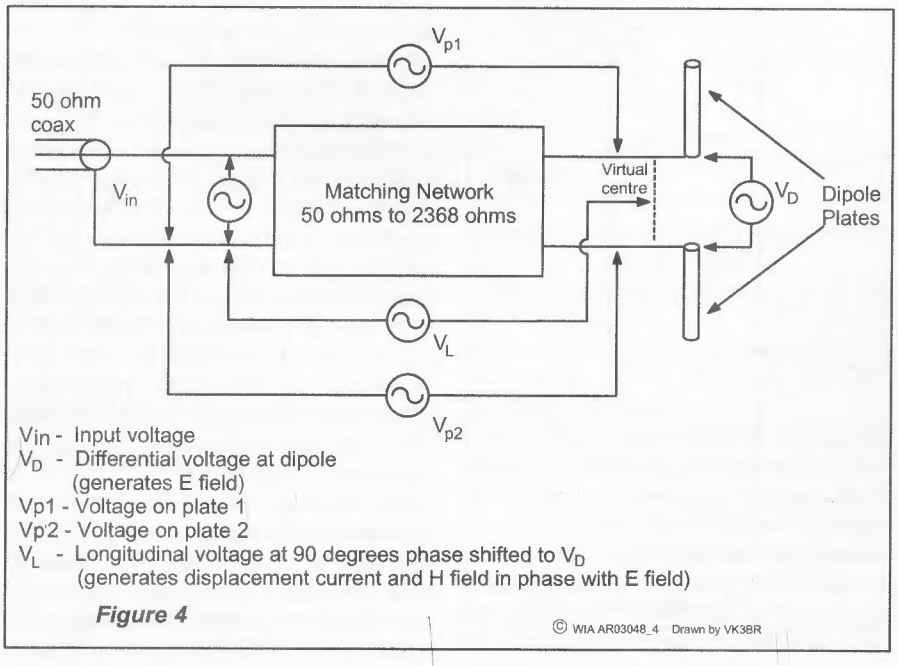


Figure 4

Figure 4. EH antenna - voltages

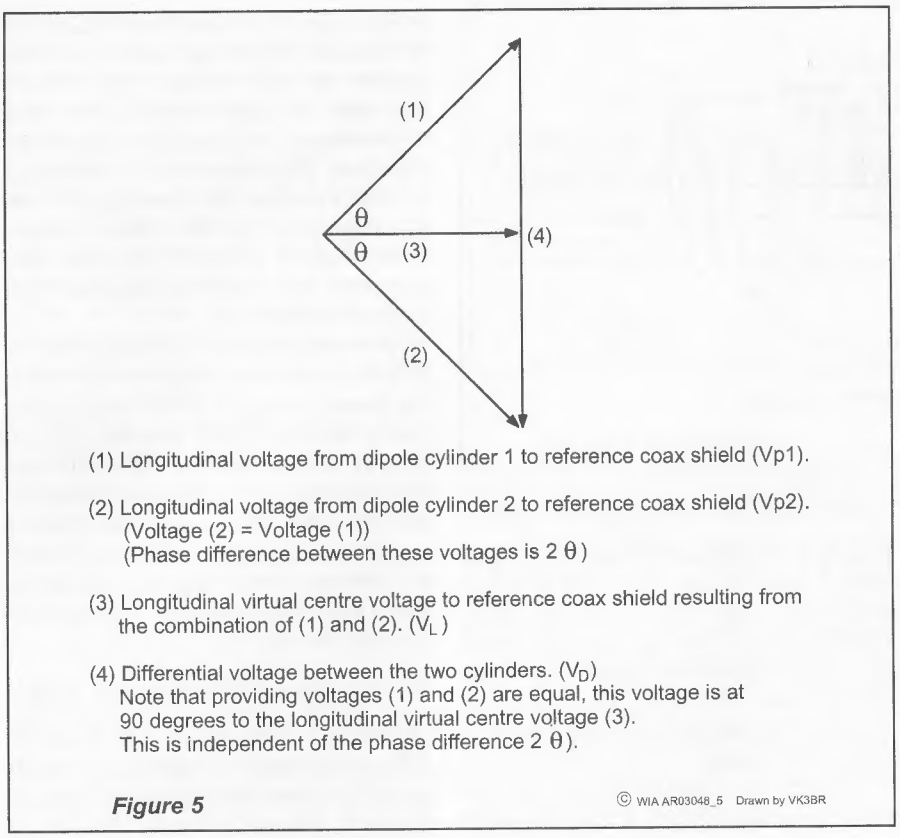

(1)
θ
θ
(3)
(4)
(2)
(1) Longitudinal voltage from dipole cylinder 1 to reference coax shield (Vp1).
(2) Longitudinal voltage from dipole cylinder 2 to reference coax shield (Vp2).
(Voltage (2) = Voltage (1))
(Phase difference between these voltages is 2 θ)
(3) Longitudinal virtual centre voltage to reference coax shield resulting from the combination of (1) and (2). (V_L)
(4) Differential voltage between the two cylinders. (V_D)
Note that providing voltages (1) and (2) are equal, this voltage is at 90 degrees to the longitudinal virtual centre voltage (3).
This is independent of the phase difference 2 θ).
Figure 5
© WIA AR03048_5 Drawn by VK3BR

Figure 5. Phase relationships between longitudinal voltages and differential voltage on the balanced LL Network.

If you read the appendix, you will see that the L matching system is actually a tuned circuit or in fact two tuned circuits making use of the low to high impedance transfer between the series and shunt connection. Using the off setting of the tuned circuits from resonance has been the method used to shift phase of the differential signal for this particular dipole. In fact I understand that the particular type of network was chosen for this purpose. To see how this works, refer to the vector diagram, figure 5.

It can be seen from the diagram that providing the longitudinal voltages V_{p1} and V_{p2} are equal and there is a phase difference of no particular value between them, there will be a differential voltage V_D at 90 degrees to the virtual longitudinal centre voltage V_L. So it's simply a matter of offsetting the frequencies of the two separate L circuits, one from the other.

As a guide line to the amount of frequency shift, a 45 degrees shift requires a frequency shift equal to fo/2Q. (The higher the Q the less is the frequency shift). Fortunately the longitudinal circuit is terminated in high impedance and hence longitudinal Q is high so frequency offset is not so great.

Returning to the subject of the second E field, one might suggest that power might be radiated as a monopole. My thoughts are that power radiated would be small as the matching network is set up for the higher radiation resistance of the dipole and would hardly be suitable to match the low radiation resistance of the monopole.

One might also argue that there could be a reverse condition where the longitudinal E field might also combine with the H field generated from the displacement current of the dipole E field to provide radiation in an enhanced mode. Again, the matching network is unlikely to be suitable for good power transfer. The network is designed for the dipole load and it is adjacent to the dipole where the radiation can be found.

H field and longitudinal current tests

As stated in the introduction, common mode or longitudinal current has been detected running down the coaxial line causing radiation from the line. We discussed in the previous paragraphs how a longitudinal voltage was developed to produce the secondary E field. Where there is voltage, current can flow and I assume the current is driven by that voltage. Current running down the coax line has been measured by close fitting a ferrite toroid over the coax, adding a single wire turn also through the hole and connecting to a 1 amp RF ammeter as shown in figure 6.

To make this measurement, the calibration was checked by first feeding a reference RF current directly through the ammeter. The same current was then fed via the shield of a short length of coax with the coupling device fitted. In my test device, the coupled reading showed about 80% of the direct reading. Calibration correction was derived from this.

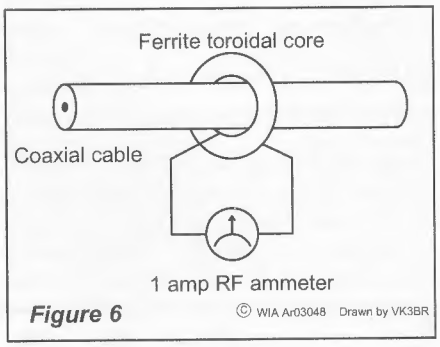


Figure 6. Current measurement

I wanted to check right down the coax so I also made use of another larger toroid which allowed me to slide it over the end BNC connectors. To get sufficient useable reading with this arrangement, I fed the coax through the toroid hole twice. Of course the calibration procedure had to be repeated.

Measurements were carried on the 20 metre L+L matched EH dipole. Measurable current is present (and only present) when the dipole is correctly matched for the EH mode with low SWR.

Using 25 watt of power, maximum current occurs at the end of the coax coupled to the dipole and is around 0.5 amp. This decreases as the measuring device is moved down the coax becoming below a measurable value as a quarter wave is approached. Further along the coax, the current increases again to reach another peak at a half wavelength.

This confirmed that the current was present and that there was a standing wave of accountable intensity which is

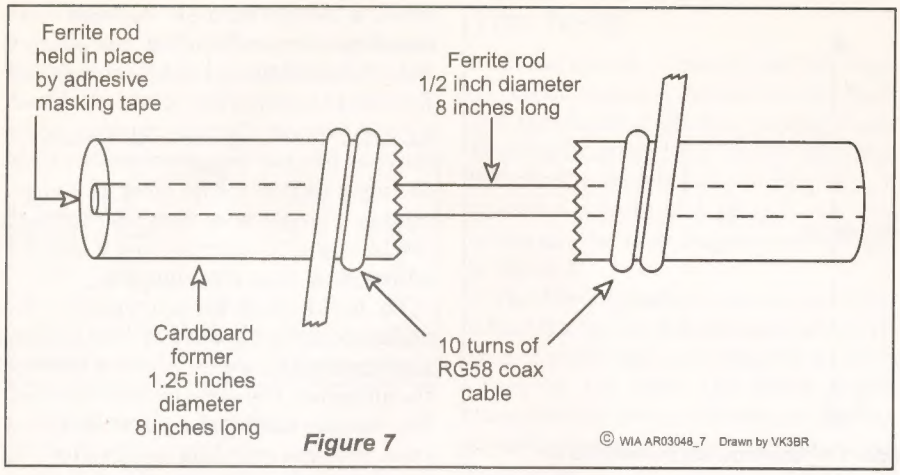


Figure 7. Coax cable line choke

not offset by current within the coax centre conductor.

Inhibiting the coax current 20 metre trap with ferrite core

To enable tests on the 20 metre L+L with the coax shield current removed, I made up the coax line choke shown in figure 7. The balun is 10 turns of RG58 wound on a 1.25 inch diameter former with an 8 inch x 1/2 inch diameter ferrite rod down the centre. The inductance measured from one end of the outer sheath to the other is 11.5 µH. (This provides a rejection impedance at 14 MHz of over 1000 ohm.) The ferrite rod was held in place by masking tape as a temporary means.

Whilst the choke reduces the unwanted current to a considerable extent, it is far more effective to tune the choke with a parallel capacitor so that it forms a trap. The capacitor is connected to the coax braid between input and output of the choke. The choke described is tuned with about 10 pf of capacitance (including distributed capacity). The resonance at 14 MHz can be easily checked by inserting the coil of a dip meter into the tubular former. With a Q of around 100, the trap increases the rejection impedance to around 100,000 ohm.

One consideration using the trap, is IR loss due to circulating current within the tuned circuit. Circulating current loss is minimised by keeping the L/C ratio as large as possible. Of course the limit is when L is too large to tune in the presence of the coil distributed capacity. In the trap described, circulating current loss was derived as about 4% of the power fed differentially through the trap.

Air wound 20 metre trap

Obtaining a large ferrite rod might be difficult and expensive and a second air wound trap has been tested as shown in Figure 8. The inductor for this trap is wound on 55 mm PVC tube and requires no ferrite core. What is really required

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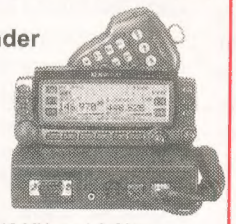

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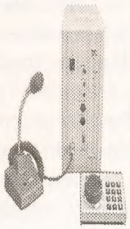

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for winding the inductor is a small diameter coax. I didn't have any of this so I wound the trap with some 2.8mm diameter shielded wire which has a PVC cover and its inner wire PVC insulated. The characteristic impedance of this cable is not known and I made no attempt to determine its value. However apart from a measured 1 dB differential insertion loss, it worked very well.

The winding is arranged with sufficient turns to resonate at 14 MHz with a 10 pf capacitor. Details of the trap formed are as follows:

Former - 55 mm PVC Tube
Winding - 13 turns
Inductance - near 11 µH
Q - near 50
Derived loss resistance at 14 MHz - near 20 ohm
Measured differential through loss at 14 MHz - 1 dB

The tuned choke as a trap directly substituted for the original ferrite cored tuned choke. As with the ferrite core choke, interaction between the antenna tuning and the coax cable was inhibited and no coax shield current could be detected.

Circulating current through the tuning capacitor was measured as 0.28 amp for 50 watt of power transmitted. Based on the 20 ohm of loss resistance in the choke, this represents 3% of the power lost due to the circulating current.

The shielded wire used is not the preferred material and the 1 dB insertion loss to the differential signal could probably be reduced by using a small diameter coaxial cable with polythene dielectric such as RG178.

With continuous power of 50 watt fed to the antenna, a slight warming of the choke was evident.

The air wound choke is quite good enough for the job and does away with the expense of the ferrite rod and problems sometimes experienced with flux saturation in the ferrite material.

A trap for 40 metre

I also needed a trap for the 40 metre EH antenna. A choke was assembled with essentially the same construction as the 20 metre ferrite core unit (Figure 7) but with the number of coax turns increased to 18. This increases the inductance to around 30 µH to give a reactance of 1319 ohm. The choke resonates at 7 MHz with a 15 pF capacitor in parallel. The derived circulating current loss is about 7%. Whilst this is tolerable, I believe that the number of turns (and hence the inductance) could be increased further with further efficiency improvement up to the point where the choke distributed capacity prevents resonance at 7 MHz.

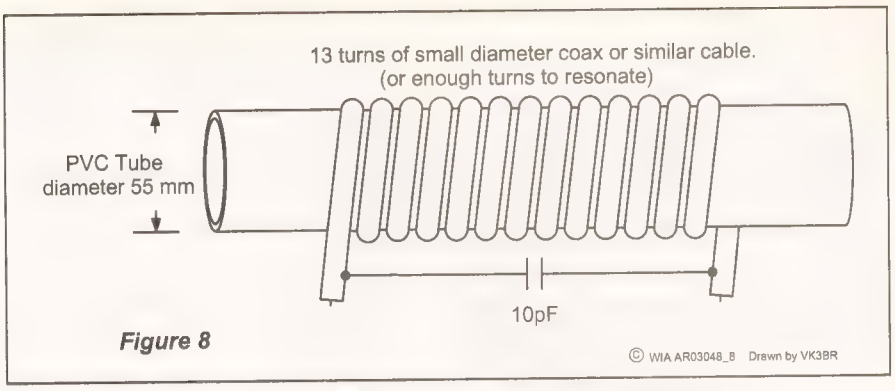

13 turns of small diameter coax or similar cable.
(or enough turns to resonate)
PVC Tube
diameter 55 mm
10pF
Figure 8
© WIA AR03048_8 Drawn by VK3BR

Figure 8. 20 metre trap, air core

The trap performs similar to the 20 metre unit and stabilises its tuning adjustment. There is no longer any interaction between the coax and the antenna tuning which occurs without the trap.

I have not tried an air cored trap on 40 metre but I believe it would be fine to make one similar to figure 8 with about 18 to 20 turns.

Where to place the trap

The trap can be placed right at the input connector to the antenna and this works OK. However I suggest putting it 1 to 2 metre down from the input connector. My tests using the 20 metre antenna produced signal reports 1 to 2 S points higher with a 1.5 metre length of coax tail between the antenna terminal and the trap. Field strength measurements without the short coax tail also indicated a skewing upward of the signal. Without the tail, the highest signal level received by a station at distance was found to be achieved when the bottom of the EH tube was tilted backwards by 45 degrees so that the skewed lobe was tilted down.

Comparison of Antennas

Tests were conducted with another radio Amateur who lives 11 km distant. I live partly up the slopes leading up to the Adelaide Hills and my friend is on the flats. Communication could be considered as close to line of sight.

The 20 metre EH antenna with trap 1.5 metre down the coax line was compared with an end fed full-wave Inverted V antenna and a 2.5 metre high vertical whip. The EH antenna was erected 2.5 metre from the ground. The vertical antenna was mirrored against a large steel decking as a ground plane. The decking is 2.5 metre above the ground.

With 25 watt of continuous carrier power fed to each antenna, my friend gave the following reports:

The EH antenna was 0.3 of an S point below the Inverted V.

The EH antenna was 0.2 of an S point above the Vertical antenna.

Making corrections for the comparisons, the vertical antenna is down by 3dB because of loss in the matching. The EH antenna is down by 1.25 dB because of loss in the feeder cable and down by 1 dB because of 20% loss in its matching network, making a total of 2.25 dB loss. However its signal report was 0.2 of an S point up on the vertical antenna which could be considered as 1 dB higher. On these figures we could say the effective signal levels from the vertical antenna and the EH antenna were almost the same.

Considering the inverted V to have negligible matching loss and the fact that it was 0.3 S point (2 dB) up on the EH antenna we could also say that the corrected readings for the three antennas were very close.

I also noted the receive levels from his single sideband speech transmission:

I recorded the Inverted V as one S point above the EH Antenna.

I recorded the Vertical antenna as one S point below the EH antenna.

Summary

In this second article I have outlined a theory on how this antenna works, somewhat modified from the earlier theory first presented in the "EH Handbook" by Ted Hart. These theories assume acceptance of principles introduced by Maurice Hately relating to the Poynting Theorem and which have been open to question by some sceptics. Personally, I prefer to keep out of that particular argument as I do not believe that I have adequate background in the fundamental principles of electric and magnetic fields in space to get involved.

I have drawn attention to a phenomenon of this antenna which causes current to flow in a longitudinal mode down the coax feeder and cause radiation. I have described how a tuned trap can be used to inhibit this current.

Several tests have been described which demonstrate that even with longitudinal current inhibited, the antenna mounted at a mere 2.5 metres, can be made to radiate as well as other antennas which are larger or mounted higher.

The problem with antennas which are small compared to a wavelength is that their radiation resistance is very low in comparison to loss resistance in matching them. Hence most of the power supplied is wasted in loss in the matching network. In this EH antenna, the effective series radiation resistance is raised allowing it to operate more efficiently. Also because of the higher resistance, its Q is lower and hence its bandwidth is much wider than, for example, the magnetic loop. These are the reasons it can be made to work well as a small antenna.

I might point out that my discussion has been confined to the EH antenna with L+L type matching but there are other versions of the EH antenna. There is one type Ted Hart has called a backpacker which uses a matching network referred to as the L+T and another one new (at the time of writing) called the Star. More information on these can be found on the EH Antenna web site.

Appendix

Some notes on how to derive component values for the Matching Network

For the EH dipole discussed, we can consider the dipole input as the equivalent circuit of figure A1. For the EH antenna with tubular elements of length around Pi times the tube diameter, the capacitance is around 10 pF or less and the parallel radiation resistance would appear to be close to 2368 ohm (as given by Ted Hart).

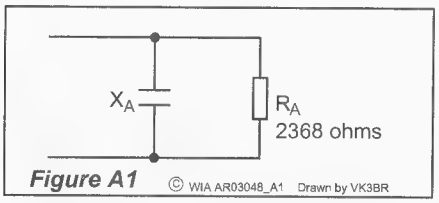


Figure A1. Equivalent antenna constants

If we ignore the unbalance to balance conversion and the need to address the phase shift, the 2368 ohm shunt resistance can be matched to the 50 ohm source circuit with a simple L network as shown in figure A2. We can think of an L network as a tuned circuit fed in series from the 50 ohm source and the output taken in parallel. The L and C components are selected to obtain a loaded Q such that 2368/50 is equal to $(Q^2 + 1)$ the ratio of parallel to series resistance of any tuned circuit at resonance. So Q is close to 6.8. Hence the reactance of the series inductive arm is 6.8 x 50 = 340 ohm and the total shunt capacitive reactance (including antenna shunt reactance) is the same.

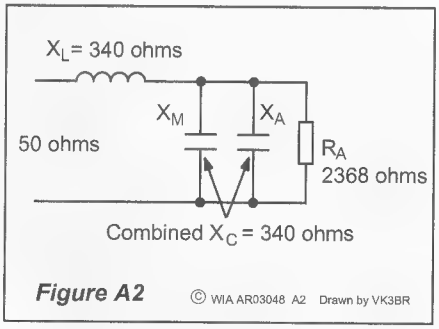


Figure A2. Basic L match
X_A = antenna capacitance
Calculated $X_C = X_M + X_A$

However in the model of the EH antenna discussed, the balanced form of the L network is used as in figure A3. Apart from balancing the circuit to the dipole, it also provides the phase shift as described in the main text. One can consider this form to be two of the L networks previously described but with their inputs in parallel and the antenna load connected across the two L network output legs. Each L network half transforms half the output load resistance (Ra) to twice 50 ohm. The four reactive elements can be calculated from the square root of 50 times R_A which, for R_A = 2368 ohm, gives reactive elements equal to 340 ohm, the same as for the simple L network. At say 14 MHz, this works out close to 4 µH for the inductors and 33 pF for the capacitors (including shunt capacitance reflected by the dipole).

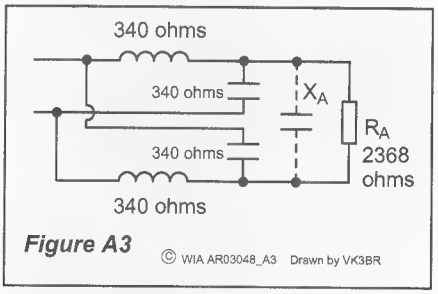


Figure A3. Balanced L match

The calculation does not take account of the need for resonance offset between the two L circuits to get the required phase shift. First working from the calculation described above, I found it necessary to reduce the inductance of the lower coil a little by taking off one turn of the winding. The one less turn is shown in figure 2.

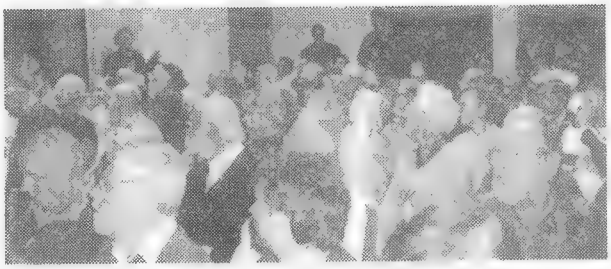
References

1. Original Article on the EH Antenna - Lloyd Butler VK5BR - Amateur Radio. April 2003.
2. The EH Antenna Web Site (Sponsored by Ted Hart W5QJR) - http://www.eh-antenna.com
3. Various Articles on the EH Antenna by Lloyd Butler VK5BR - Web site http://www4.tpgi.com.au/users/ldbutler or link from http://www.qsl.net/vk5br

ar

ACA seeks Hams' feedback

Colwyn Low VK5UE
Editor Amateur Radio magazine.



The Adelaide meeting.

The review of Amateur Radio Service Regulation is being carried out by the ACA following the WARC 2003 Conference and the Governments desire to streamline the Amateur Licencing system.

Meetings around the country have had attendances from 16 in Canberra, 24 in Darwin and 26 in Hobart to between a 100 and 200 in the other State capital cities.

Mark Loney, Executive Manager RF Planning Group and Christine Allen were the ACA representatives at all meetings. Mark conducted all meetings in a professional manner and all topics were given proper attention.

The meeting in Adelaide seemed to follow the pattern of those held in other centres. We went through a general statement of what the ACA intended to do and then through the ACA proposal in detail. The topics that attracted most attention were

- How soon could the Morse Code requirement be removed?
- What was an Amateur Class Licence going to be?
- We cannot be held responsible for interference to commercial entertainment equipment, which is build to poor EMC standards, if we are operating within our licence conditions.

There was also a plea for higher power output, it being pointed out that in most cases the power used would be limited by the exposure levels that we had to meet.

From what I have heard most meetings went on for more than 2 hours. I just hope that there were non-WIA Members at all meetings because these meetings were ACA Meetings for Amateurs not just WIA members.

Re Morse Code the ACA was playing a very "proper" course and not arbitrarily removing a requirement until all that the Australian Regulations and the International Agreements required had been officially dealt with. This will require amending the Amateur LCD, which the ACA can do without taking it to Parliament. However the decision on removing the Morse qualification will have to wait until the consultation is complete, other wise why have a consultation?

If the Morse requirement is removed Amateurs have to decide if we have just Novice and Full Call Licences, rolling the Limiteds into the full privileges for each licence class.

The impression I got about the Class Licence, as applied to Amateur Licencing, was that it would be a new class and would let Amateurs do all they have traditionally done. This being possible because they had demonstrated a capability to understand, operate and build RF communications equipment. This would not be a CB style Class Licence.

Interference issues raised a lot of heat. It would appear the wording in the discussion paper was not as accurate as it could have been. All Amateurs who read it got the impression we would be bottom of the heap and have no rights. My impression from Mark's replies to questions was that there would be support for Amateurs, who were subject to accusations of causing interference, much as there is now and that interference caused to poorly set up systems would, in the first place, require the complainants system to be properly installed. The ACA Inspectors would be available but as now a procedure of providing information to trace causes of interference, advice on who to ask to fix it would be the first response to a complaint. Amateur Stations would not be arbitrarily closed down.

Licensing

The Adelaide meeting did not get into the levels of licensing to any great depth, but it would seem we still have to sort out whether we have two levels or three. If we have two, then Entry level should be wide ranging with regard to bands and modes but still leave room for an Unrestricted licence to be worth working for. A three level system would introduce more arbitrary limitations on privileges at each stage. (This may be more of the Editor than of the meeting).

Now I hope you have all made your response to the proposals because it will do no good at all if you discussed it at length with your mates at the club or on air and the ACA did not get to hear how you felt before they decided what to do.

A WIA position paper will be made available soon. When the responses close the ACA will complete its review. The ACA may contact some parties to clarify issues and collect further information and advice in order to complete the review.

WIA SA Division President Trevor Quick VK5ATQ and Mark Loney, ACA Executive Manager RF Planning group.

ICOM Australia celebrates 20th anniversary

By Jim Linton VK3PC

From a modest beginning with the opening of its first headquarters in the inner Melbourne suburb of Windsor in 1982, ICOM Australia has grown into a major player in its sector.

To mark its 20th birthday it held a mini-trade show at a Melbourne city hotel late last year displaying its current and soon to be available equipment, with experts on hand to discuss the products.

In the evening invited guests, including the ACA and WIA, ICOM dealers and others, joined a pleasant river cruise dinner.

As to be expected there were speeches made, and a Powerpoint presentation tracing the history of ICOM Australia and looking forward to the future.

A proud ICOM Australia Managing Director, Kiyoshi Fukushima VK3BZX, told the guests of the humble beginnings of the company with just Duncan Baxter VK3LZ and himself enthusiastically promoting the ICOM amateur range to an appreciative Australian market.

Among those on the cruise were many who were there on the opening day in November, 1982 and have maintained an association with the company ever since.

Kiyoshi VK3BZX highlighted some of the product launches over the years, such as its introduction of a Land Mobile and Marine range of transceivers in 1983 and the first ICOM Aussie CB handheld in 1984, the venerable IC-40.

In early 1988 it launched its Air Band range with the IC-A20 and in the late 90s ICOM began testing the market with a small range of Wireless LAN and LCD monitors.

It has come a long way since 1982 with a staff of just two, with about 20 staff now looking after a network of nearly 300 ICOM dealers throughout Oceania.

In its five-year business plan, the company has a goal of doubling its current turnover of about $A10 million a year, including boosting its exports to the South Pacific.

ICOM Australia has built on its beginnings of being purely focused on the amateur radio market, to encompass nearly all areas of the commercial radio communications market.

Kiyoshi VK3BZX said, "ICOM is now the product of choice with the hang-gliding and parasailing community, most if not all commercial handheld CB radio users, many sailing schools and yacht clubs, the Victorian and Queensland SES, the NSW Rural Fire Service, Antarctic Division, BHP and many other mining sites.

"This has only been possible due to the work of our dealers, staff, suppliers and other organisations such as ACA and WIA, who have contributed to ICOM's success.

"More importantly, we would like to thank ICOM Inc in Japan for their enormous support in every way".

President and Founder of ICOM, Inc.Tokuzo Inoue, JA3FA, who was unable to visit Australia for the anniversary, has a business philosophy of "Technology first, the money will follow."

Mr Inoue in an interview with CQ magazine said, "No matter what, keep perfecting your technology. If you perfect your technology and make good products, you will always get business."

Recently joining ICOM Australia from Japan is Masanori Yoshiyama, who is now engaged in the area of product development to meet local needs, and business planning.

The company has signalled it will be working even closer with its dealer network, including product training forums, to help them increase their business, and to improve efficiency through the adoption of electronic commerce or online services and inventory.

ICOM Australia Managing Director, Kiyoshi Fukushima VK3BZX, Jim Linton VK3PC and Duncan Baxter VK3LZ

Wishing the retired icon of ICOM "Happy Days"

After 20 years service, Duncan Baxter VK3LZ, the face of ICOM Australia in the company's advertisements, and larger than life presence at hamfests, has retired.

He intends to spend some time travelling around Australia in his camper trailer.

As a gift, Duncan VK3LZ was presented with an ICOM IC-706MKIIG which will help him keep in touch with his many amateur friends on his travels.

The company intends to retain him as a consultant to draw on his extensive experience over the past two decades.

An alignment transmitter or 80m mini-fox

By Bryan Ackerly VK3YNG.

If you are considering building an 80 m foxhunt receiver and don't own a signal generator, this project may prove useful. It provides a stable signal source at a number of different output levels with more than 100dB range. It can also double as an 80m fox-or mini-transmitter.

This circuit was designed as a simple alignment source for the VK3YNG 80m foxhunt receiver. Anyone constructing one of these receivers is encouraged to build one of these circuits if they don't own a reasonably good signal source.

This circuit is capable of providing reference signal levels between –120dBm and +6dBm in 40dB steps. This level range is typical for ARDF and other foxhunting on 80 metre and is useful to ensure that a receiver is capable of handling the signal range required to hunt transmitters right to their source on this band.

Circuit operation:

The schematic is shown in figure 1. U1A forms the main oscillator. R2 provides bias to operate U1A in its linear mode. C2 and C4 provide parallel loading to ensure Y1 oscillates at its marked frequency. This oscillator runs continuously.

U1D and U1C along with R4, R5 and C5 form a low frequency square wave oscillator at approximately 4Hz. This circuit was taken from an old National Semiconductor databook. On each alternate cycle, C5 is discharged through R5 until U1D toggles. R4 apart from providing a feedback path to U1D inputs also limits discharge of C5 through the input protection diodes on U1D as the voltage at C5 effectively swings greater than the supply rails.

The low frequency oscillator signal is then supplied to U1B, which effectively gates the 3.5MHz signal, by the lower frequency oscillator. This generates a "pulsing" signal that is easily identifiable.

For situations where a continuous signal is required, fitting R1 at the input of U1D forces the low frequency oscillator to stop. As both inputs of U1D are high its output will be low therefore forcing the output of U1C high which gates the 3.58MHz signal from U1B continuously on.

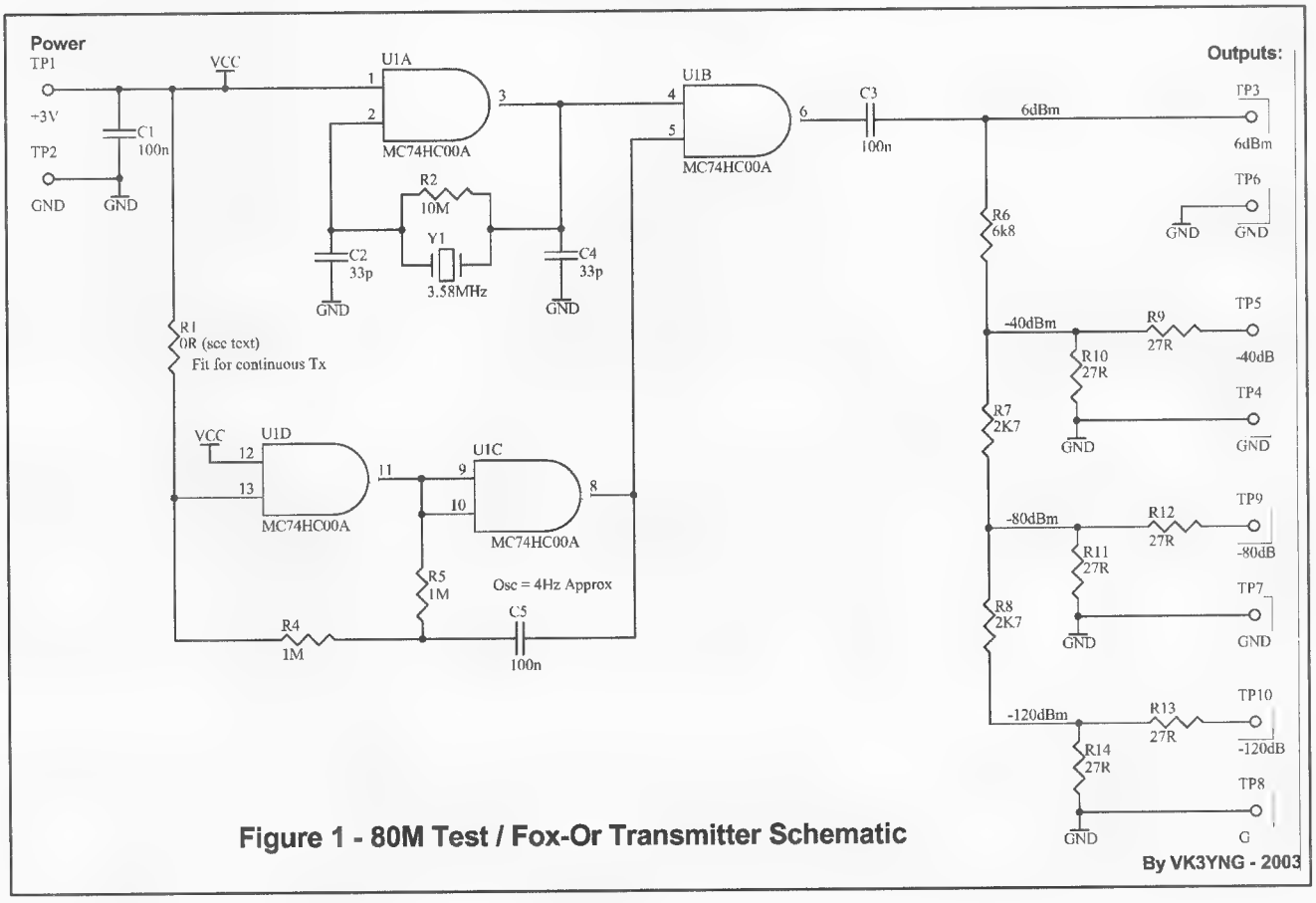


Figure 1 - 80M Test / Fox-Or Transmitter Schematic

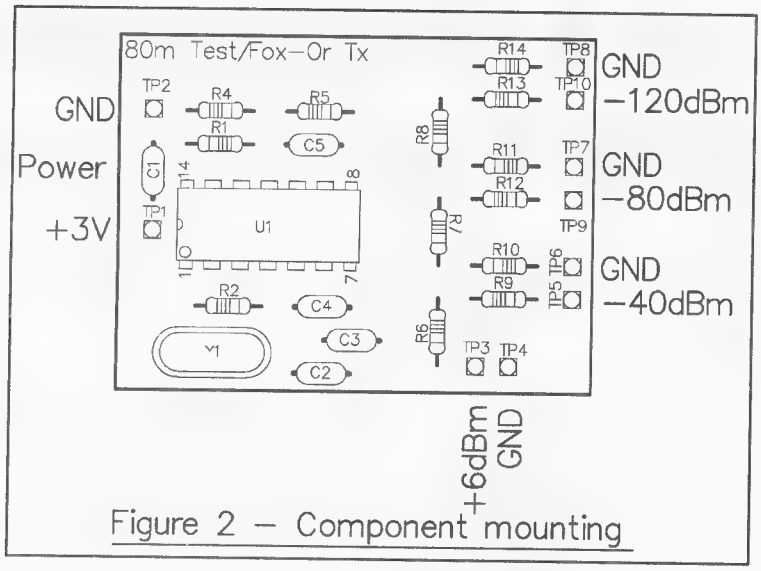


Figure 2 – Component mounting

C3 provides DC blocking for the output. The output of this circuit should provide up to 6dBm into 50 ohm for a 3.3V supply.

The attenuation network is a little unusual. Although it is not immediately obvious it is actually a voltage divider arrangement. It takes into account the fact that in most cases only one output will be used at a time, and because the attenuation is so great there is little influence from each stage. Using the –40dBm output as an example, a voltage divider is formed by R6 and R10. Actually the effective value of R10 is closer to 20 ohm when all of the series and parallel resistances are taken into account. This network results in a power attenuation of about 46dB. The series combination of R9 and R10 provides an effective source impedance which is close to 50 ohm to allow good matching into coax cable.

The same arrangement is used for the –80 and –120dBm outputs. The actual output levels should match fairly well for all outputs except the –120dBm one. This is because leakage limits its level somewhat and in practice the level is between 5 and 10dB higher than this. For the purpose of the circuit this should not be a problem. If you require a more accurate level, putting a shield around R8, R13 and R14 may help. Note that leakage increases significantly with frequency and this circuit arrangement will require a lot more care if used at higher frequencies unless surface mount components and double sided board are used. For a single sided board though the results at 3.5MHz are very good and quite repeatable.

Construction

Construction is straightforward. There are no special components. Mount the resistors and capacitors first as shown in figure 2. Make sure that all components are mounted flat against the board. Any elevated components especially around the attenuator will compromise the circuits operation. Trim the leads close to the board once soldering is completed.

Next mount and solder the integrated circuit taking note of orientation. Connect the +3V and associated ground connection to a battery holder.

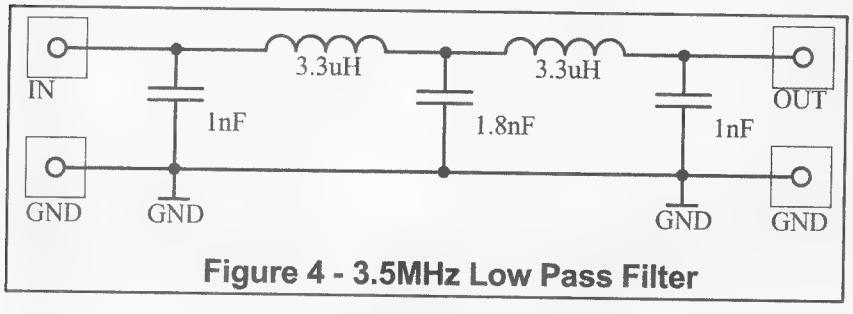


Figure 4 - 3.5MHz Low Pass Filter

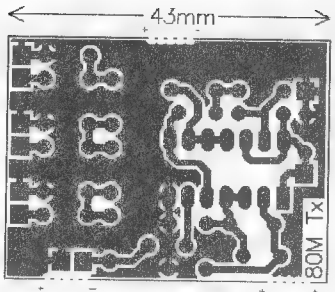


Figure 3 – PCB Artwork

If you are not using a properly made PCB, good results should still be possible using "Dead bug" construction techniques, but keep all signal carrying components flat against the board to minimise unwanted coupling.

A short run of RG174 or similar 50 ohm coaxial cable should be used to connect the required output signal. It may be tempting to consider a rotary switch to select the output level. However, the additional leakage through the switch may compromise the accuracy of the attenuation. If the transmitter is to be mounted in a proper box it may be better to provide four BNC or RCA output connectors instead. At this frequency, the impedance of the connectors is of little consequence. What is important here is that they are well shielded. Make sure that sockets are spaced a reasonable distance apart to minimise leakage.

If the board is to be properly boxed up, a single pole "on-off" switch and power LED with an appropriate dropping resistor can be added if desired. Another switch to change between "continuous" or "pulsed" operation could also be fitted in place of R1 if desired.

Operation and testing

There is no alignment required, just a simple check to make sure that the circuit is functioning. The first test should be done with R1 installed. Connect a short length (about 500mm) of wire to the +6dBm output. Use a nearby communications receiver of some sort and tune it to 3.58MHz. A continuous signal should be heard.

Next remove R1 and make sure that the signal then appears "pulsed" at about 4 times per second.

A note on antennas:

A 500 mm wire antenna should enable the transmitter to be heard up to 50m

away. A full length 80 m dipole should enable the transmitter to be heard several kilometres away. Be careful using an antenna that is this efficient, as there is no output filtering and the transmitter output is very rich in harmonics. If a long antenna is to be used, an output filter should be considered. A suitable filter is shown in figure 4. The expected response of this filter is shown in figure 5. (At least 36dB of attenuation is required at 7MHz to make sure harmonics are below –30dBm.) This filter is only needed on the +6dBm output and can be built dead bug style.

Parts list

R1 - Zero ohm Resistor or link. (*see text)

R2 – 10M 1/4W or 1/8W resistor

R4, R5 – 1M 1/4W or 1/8W resistor

R6 – 6K8 1/4W or 1/8W resistor

R7, R8 – 2K7 1/4W or 1/8W resistor

R9, R10, R11, R12, R13, R14 – 27R 1/4W or 1/8W resistor

C1, C3, C5 – 100nF X7R 5mm Monolithic Capacitor

C2, C4 – 33p NPO Ceramic capacitor

U1 – 74HC00A DIP Quad 2-input NANAD gate

Optional parts:

Metal box, Battery Holder, LED and 270R resistor, SPST power switch, SPST mode switch, 4x BNC or RCA sockets. For Low Pass filter: 2x3.3µH inductor, 2x 1nF Ceramic or Monolithic capacitor, 1x 1.8nF Ceramic or Monolithic capacitor.

*Note: R1 is fitted when using this board as an alignment signal source.

R1 is removed when using this board as a pulsed "fox-or-ing" transmitter

Power supply is 3 volt nominal (Use 2x AA Alkaline batteries)

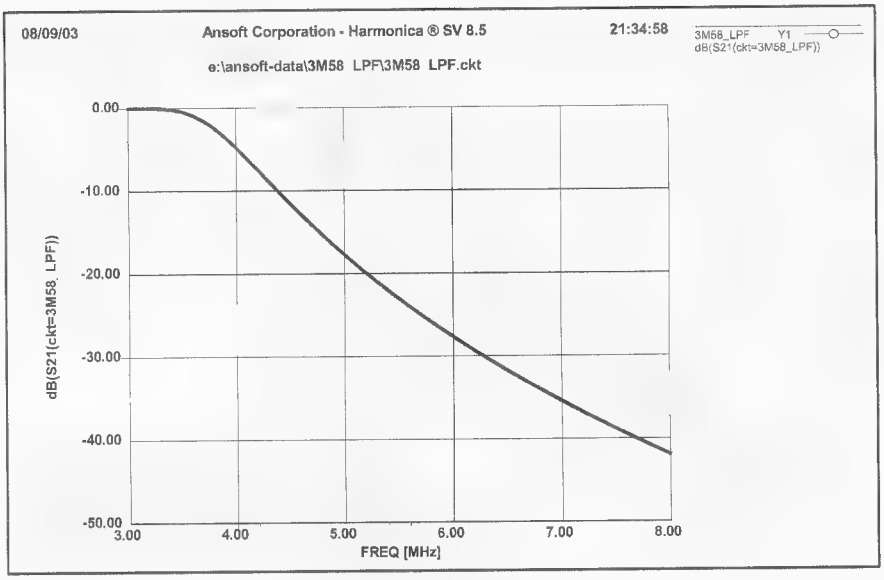
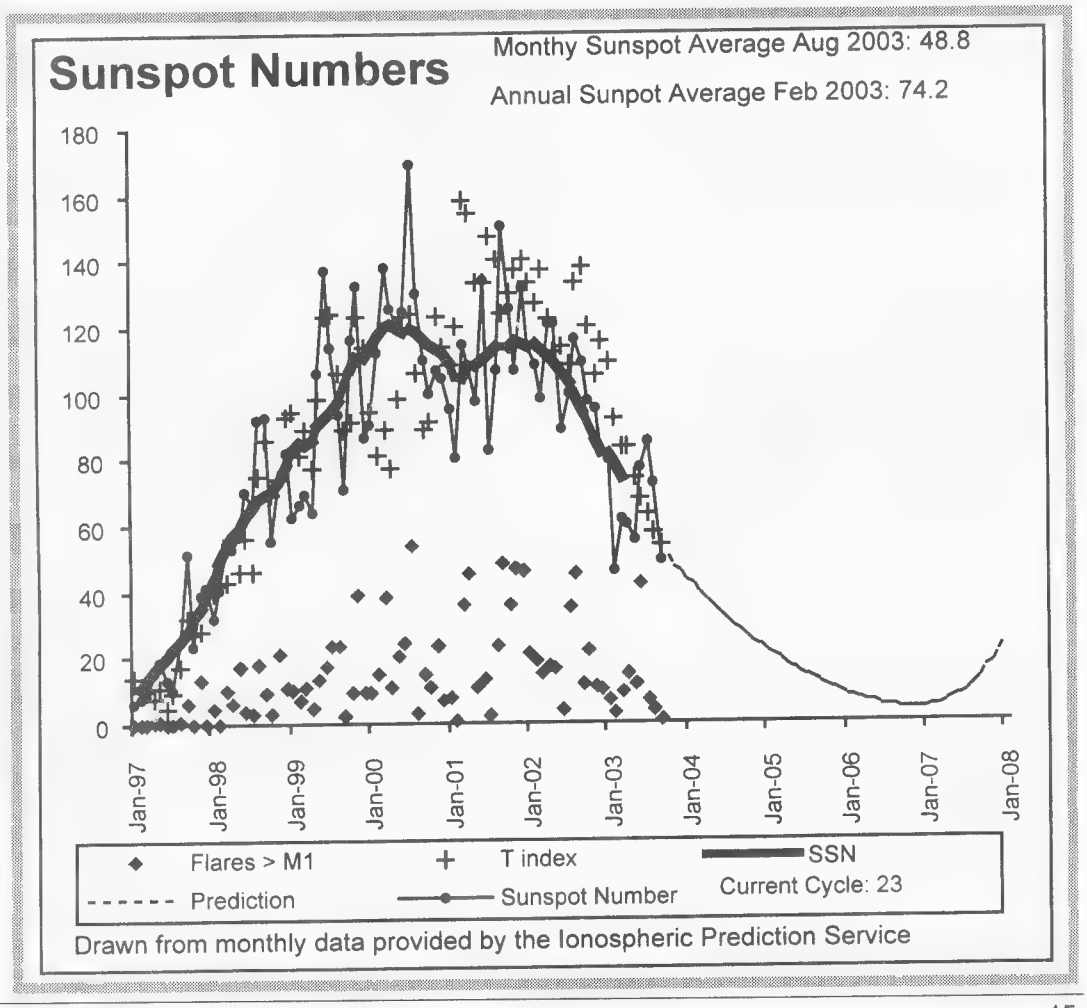


Figure 5

For more information:

The Victorian ARDF group web page: http://www.ardf.org.au
The author's web page: http://www.users.bigpond.net.au/vk3yng/foxhunt
The author's email address: backerly@bigpond.net.au



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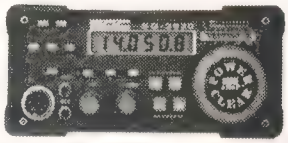

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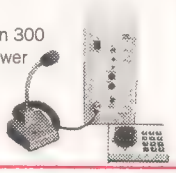
- Selectivity 34 filters built-in 300 Hz to 6 KHz. • Transmit Power 5 to 100 watts
- Memories Limited only by PC memory • Power 12-14 DCV 20A (100W TX)



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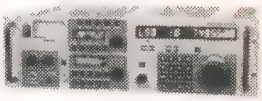

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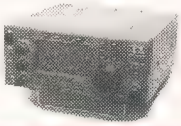
Ten Tec Jupiter HF Transceiver

Pegasus features plus a LCD panel and controls. Use under PC control in Pegasus emulation Mode. GUI software at no charge. With the command set for control of both the Pegasus and Jupiter you can write your own control software.



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Ross A. Hull VHF Trophy winner 2003 encourages others to give it a go

By Jim Linton VK3PC

The Ross A. Hull Memorial Contest on the higher bands is a prolonged affair starting on Boxing Day 26 December, and running for almost three weeks with two sections - seven days and best two days.

It is held in the memory of VHF pioneer Ross Hull and the winner of the seven day section has their name and callsign inscribed on a perpetual trophy.

The contest period has participants high on alert for any bit of enhancing propagation and to get the best out of it by working everything that can be heard.

The latest and two-time trophy winner is Rob Ashlin VK3EK of Bairnsdale in eastern Victoria who achieved the top score over seven days of activity, with runner-up Glenn McNeil VK4TZL, who took out the two day section. Both have now won the trophy twice.

The inscription on the Ross A. Hull VHF Memorial Trophy reads: To perpetuate the memory of an Australian amateur – an early member of the WIA – who devoted his life to the amateur cause and who pioneered the VHF field during his brilliant career as editor of "QST" and "The Radio Amateur's Handbook". Born in Melbourne in 1902 his untimely passing in 1938 was a great loss to the amateur fraternity and the world of radio communications generally.

Rob worked Glenn VK4TZL on 6-metre during the contest and remembered at that time his rival had made the highest number of contracts.

He said, "So it was the head down and keep working as much DX as possible. I was not getting much score out of 6-metre, so for me it had to be done on microwave.

"Contacts were over 100 km away, with Melbourne and Geelong stations between 200 and 300 km on bands up to 10 GHz."

Meanwhile, up in Queensland Glenn VK4TZL, after good 6-metre openings in the 2001-2002 contest that gave his score a really good push along, was hoping for a repeat of the excellent openings to JA.

Microwave activity is nowhere near as prolific as in VK3, and while Glenn had access to 23 cm and 13 cm, a lack of other operators put paid to any ideas of large microwave band scores.

From Glenn's point of view and previous experience, 6-metre would be the deciding band unless some really good conditions came along on 2 m and 70 cm.

Glenn VK4TZL said, "I knew Rob and the other guys down south were not getting much on 6-metre, so I had everything crossed that something would happen to the north, and it did, but not quite long enough to push me over the line. And I knew Rob would be out to maximise his score on the microwave bands."

Runner-up Glenn VK4TZL had a good score on 6-metre, while Rob VK3EK maximised his opportunities on the remaining bands to achieve a 24-point winning margin.

Rob VK3EK said, "I must say well done to Glenn VK4TZL for a fine effort as well with scoring first place in the two-day event and second in the seven-day section. The score tells the story, we both had different propagation and activity and it was still very close."

He also acknowledged all the other placegetters in the contest. Rob VK3EK remembers when a few years ago he came third, then two years runner up, and his first win in 2000.

Rob VK3EK said, "My first win in the contest's 50th anniversary year (1999-2000) was a proud moment for me. I think there are a lot of stations out there that can win this contest and will. I hope that I can be part of you all doing that, it will be fun for us all."

Glenn, VK4TZL was only too happy to see Rob take out the top spot. "It is a

Continued on page 18

(Note This is published to encourage more participation in this year's Contest. So note what happened last year and start preparing for Boxing Day 2003. Editor)

Club News

Darwin Amateur Radio Club (VK8DA)

Peter VK8PDG
www.vkham.com/vk8da (Still to be upgraded)

My email address – I've had a few people call me and say I've sent you email but you have not replied, why not Stuie ?? Well my old email account vk8nsb@octa4.net.au no longer exist, my email address is vk8group@hotmail.com. Please change your address books.

IRLP News

At present Mike VK8ZMA is in the process of placing the IRLP node 6800 on the 147000 Repeater located in Darwin City. As soon as this is done Mike will inform me and I will email you all to advise you that IRLP Darwin Node 6800 is on air on 147000 Darwin City Repeater. This is great news and I hope that many Amateurs enjoy the IRLP Node provided by Mike 8ZMA on the 147000 Darwin City Repeater. All the IRLP info is on the Clubs webpages.

QSL Bureau

As reported the bureau has now officially changed over from VK8HA to VK8DK Len in Katherine. Len will collect QSL cards from VK8DA. So if you wish to drop cards off to the Buro you can do it at VK8DA. If you have any Questions about the Buro please contact the VK8GROUP, The reason is Len is currently out of Katherine working for the next month or so, so if you wish to contact him please e-mail the VK8GROUP and I will contact Len on his Mobile phone for you.

These comments from Peter VK8PDG (Thanks Peter)

I am sending you the following information if you have not already picked up on the air waves that one of the 2 metre Packet ports is open again along with my Tel_Net port now QRV 24/7, so any one can Tel_Net through onto 2 metre. Here is the Telnet setup for any one wishing to use the system. TelNet: 211.26.117.59 Port: 6300

The 2 metre RF side of the port will be switching until I get my new radio coming up from down south but is QRV 144.900 MHz at 1200bps to the WinFBB32 BBS. Many thanks for the great amount of feed back I have received concerning the opening of the First Echolink Gateway in HYDERABAD - INDIA by VU2NRO-R everyone can read a short web page of this event with a link to VU2NRO as well as VU3RSB at the following web URL: http://www.angelfire.lycos.com/nt/voiceofdarwin/index.html

Yet some more news concerning a SAT's project called The ET Shadow Project Australian Section. Web Site: http://vk3ukf.freewebsitehosting.com/etshadowozindex.html

This is open for all to take part and even SWLs, so have a look at this and one can use their sound card to act as the TNC. The programs and URLs are on the above web site and downloading is FREE so if any one is interested in this perhaps get themselves on the list of participants by contacting me Peter VK8PDG or Kevin VK3UKF.

OK that is all for now I will let you know more as each system comes back on-line.

Note: *The Editor took the liberty of lifting this DARC Newsletter to give the Club's activities wider exposure. Hope that's OK. These are weekly notes.*

Ross A. Hull VHF Trophy winner 2003 encourages others to give it a go

Continued from page 17

friendly rivalry, and Rob is as keen as mustard, so it was great to see him on the winner's dais again."

Glenn's only wish was that many more radio amateurs would give the Ross Hull Contest a go. "You don't need a super station to compete or win. Most of my contacts were completed with 100 W on 6 m, 100 W or 400 W on 2 m and 70 cm, into single yagi antennas ... the biggest being 12 elements on 2 m.

"The two-day section especially, allows a station to compete throughout the contest period and then nominate the best two-day score, not an especially difficult task."

This year, and to a limited extent last year, provided Glenn VK4TZL with the opportunity to try some digital contacts during the contest. He said, "I didn't get many, but I did manage to work VK7 on 2 m FSK441, which is worth quite a few points.

"But I think that the time taken for a digital contact doesn't really make it feasible to depend too much on this mode of contact."

Well who is going to win the next Ross A Hull Trophy, and feature in its categories? There is any number of possibilities or it could be a relatively unknown who snatches the prized trophy.

But as Rob VK3EK and Glenn VK4TZL both urge, it is a good contest and more radio amateurs should get involved because they will enjoy it.

The Contest Manager, John Martin VK3KWA noted that the 2002-2003 contest saw an unusually high number of logs from those entering the contest for the first time.

John said, "I hope this is a sign that activity is on the way up again, but we still have a long way to go before activity returns to the levels that existed some years ago."

He said there are plenty of stations with DX capability, and many more who could participate to increase activity on the higher bands, yet the contest only attracted 20 log entries.

A review of the contest is underway to see how to make it more attractive, and John VK3KWA said he welcomes any suggestions.

Rekindling the magic

Michael J. Charteris VK4IQ
empire1963@hotmail.com
Address as per WWW.QRZ.com

When all is dull and the bands are be-stilled with a silence unbecoming, I find myself reaching for my copy of the wonderful book by Mr. John Clarricoats G6CL, "The World At Their Fingertips". This is the story of what is the RSGB today, but which was then the London Wireless Society. And from its pages flow the story of Amateur Wireless all those years ago, just after the end of the Great War in 1918. The book itself covers the development and the struggle of the Hams of those days, as well as the amazing equipment they constructed. The inspiration that follows is such that I am somewhat more appreciative of what we call Ham Radio today. For as much as they worked miracles with the most basic of materials, we today have miracles a plenty in the black boxes that prevail in most radio shacks in here in Australia.

With this in mind, I reminisced about what it would have been like in the 1960s with the equipment that was commercially available in those days. In an effort to hark back to those times I set about collecting a few of what I now refer to as Classic Silver Tailed Yaesus. I wanted to be able to rekindle the magic that had inspired me to study for my radio licence almost 20 years ago. My first transceiver upon gaining my Novice Licence, VK4MAE, was a one owner Yaesu FT401B. I subsequently murdered my first set of 6KD6's Finals, and not long after that took lessons from a local Ham who was nice enough to explain the mystery of Valve output tubes. From then on it was lots of fun with contacts across the globe on 15 m and getting to know the locals on 80 m. One interesting point used to be when talking to the JAs, and upon relating to them the equipment being used, FT401B, to responses of "Oh that is very old equipment, but its doing a good job for you today". It was almost a welcomed endorsement that just because the equipment was old, it was no reason for it not to work just as good as the new stuff with a few less bells and whistles. Yaesu at that time had just released their new flagship transceiver, the FT-ONE with general coverage receive for the first time, while the FT101ZD still flourished in the market place

Some twenty years has since passed, and I have had the pleasure of owning a multitude of transceivers since then, including the famous Collins KWM2. Through the course of this time I also upgraded from Novice to Combined to finally Full Call as VK4IQ. But alas the dream I had held for the past 10 years was that of a station made up of equipment from the FTDX400 series of transceivers from the 1960's & 70's. I was drawn to its classy silver front panel, its all tube line up, and most of all the sheer power of its output from the delicate 6KD6 Finals. The received sound of SSB signals from operators using this equipment had also impressed me very much. So in the past year I had set about acquiring one each of the following sets in this series. Namely the FRDX400 Receiver with matching FLDX400 Transmitter, a very nice pair indeed, despite being idle for the past seven years, but I was happy to get this not often seen set of Twins. The net set I added to the station was an FTDX400 Transceiver in mint condition, still with the clear plastic all over the front panel. And finally I picked up an FTDX401 that looks really great on the outside but needs a bit of Vitamin B on the inside to get it back up to a healthy state of affairs.

One of the real beauties of this range of equipment is that you the operator actually have a good chance of being able to fix it yourself, perhaps with he help of a friend as well. For as all well know, not many have the equipment let alone the qualifications to lift the bonnet of this new equipment. No doubt there will be a lot of the older Amateur Radio Operators out there who have in the past used this equipment with varying degrees of success. I have been told of such ailments in this equipment as cracked PCBs, dry joints, failed crystals, unstable power supplies, deafness for no apparent reason and a few other complaints as well. I guess it is par for the course that such things would happen to a percentage of this equipment over time, but they are all about 30 years old these days and perhaps it is to be expected. For those who have never heard of this series of

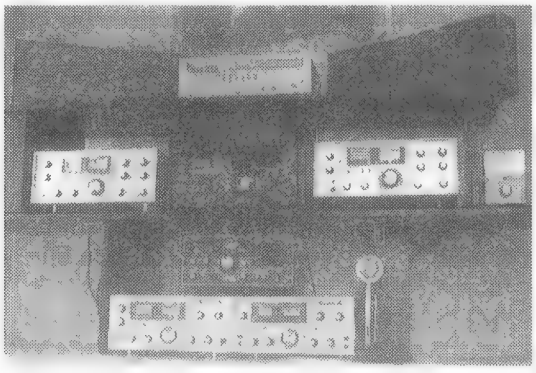

Photo 1. The Yaesu collection

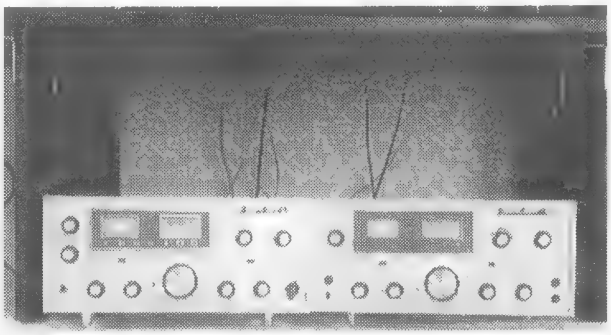

Photo 2. The 400s

Yaesus or ever owned one, I have decided to include in this basic article some of the details I have on the FRDX400 RX and FLDX400 TX. I have not as yet fired up the TX side of my Twins, but will merely quote from the book for the benefit of detail. The FRDX400 receives very well indeed, and the ANL is quite effective, along with the Rejection Tuning. This is indeed a feature I wish Yaesu had continued to use on the sets that came later in the series

Now as for the Receiver of this range, we start off with the FRDX400 Receiver, of which I am lucky enough to have an original colour brochure produced by Yaesu in1967. These came onto the Australian market through Bail Electronic Services in about 1967 or so, along with the matching Transmitter and the Transceiver version, being the FTDX400. The pricelist I have from Bail for August of 1968 states that the selling prices for these units at the time was as follows,

FLDX-400 Transmitter, (Mechanical Filter), inc PTT xtal Mic. $478-00

FRDX-400 Receiver, 160 - 10metre amateur bands $ 448-00

FTDX-400 Transceiver, (Crystal Filter), inc xtal PTT Mic $ 690-00

There was also a range of accessories for the series, and they included the following,

FLDX-2000 Linear Amplifier, $278-00

SP-400 Matching Speaker, $18-00

6 & 2 Metre converters, $18-00 each

FM Adaptor, $18-00

Just a small request to the readers, as I am still looking out for the Ext Speaker, the Ext VFO 400 type, as well as the FLDX2000 Linear Amplifier to complete my 1967 Ham Radio Station. So if you have any of these items, which you would like to part with then please drop me an e-mail, or perhaps phone, as I would like to hear from you about them no matter what their condition.

From the handbook of the FRDX400 Receiver are the following selected specifications,

"Mode: Selectable SSB & CW with ring demodulator, AM with diode detector

Sensitivity: SSB & CW 0.5µV S+N/N 10db

AM 1.0µV S+N/N 10db

Selectivity: 1 kHz at 6db down, 4 kHz at 60db down with rejection tuning, 2.4 kHz at 6db down, 4 kHz /60db down: 4 kHz/ 6db down, 7.5 kHz at 25db down:

(600 cps at 6db down, 1.5kHz at 60db down)

Spurious Response:- 60db at 14 MHz: internal spurious signals within Amateur Bands less than that from a 1.0 µV antenna system.

Frequency Stability: After warm up, less than 100 cycles for any 15 minutes: less than 100 cps for 10% line voltage change

T-Notch Filter: Better than 50db

Dial Calibration: 1 kHz"

As for the FLDX400 Transmitter, I will quote once again from the original colour brochure from Yaesu in 1967

"Specifications

Frequency Coverage: 3.5 - 4.1, 6.9 - 7.5, 13.9 - 14.5, 20.9 - 21.5, and-27.9 - 28.5 MHz

Modes of Operation: SSB: Upper & Lower on all bands

CW: Grid block keying, VOX circuit keyed for break - in keying

AM: Either sideband with carrier

Dial Calibration: Main dial calibrated 0 to 500 kHz and 500 kHz to 1000 kHz. Vernier dial calibrated 0 to 50 kHz to 100kHz in 1 kc division.

Stability: Less than 100 cycles within any 15 minute period after warm-up, less than 100 cycles with 10% change in line voltage.

Sideband Suppression: 50 db at 1000 cps

Carrier Suppression: Better than 50 db

Distortion Products: In excess of 30 db down

Frequency Response: 300 to 2700 cps

Input Power: SSB & CW- 240 watt PEP, AM 100 watt

Output Impedance: Nominal 52 ohm adjustable pi network

Microphone Input: High Impedance dynamic or crystal

Tubes & Semi-Conductors

6AN8 x 1, Speech Amplifier; 1S1007 x 2, Balanced Modulator; 6U8 x 1, VOX Amp, Relay; 12AT7 x 1 SSB Mixer; 6AW8A x 1, Heterodyne Oscillator & Mixer; 12AU7 x 1 VFO; 12BY7 x 1 Driver; 6U8, Carrier Osc & Antitrip Amp; 12AU7 x 1, SSB Oscillator; 6BA6 x 1, IF Amp; 6CB6 x 1 VFO Mixer; 6JS6A x 2, Final Amp"

As all can see there is enough heat generated here to warm the feet of many a Ham on a cold winter's night. And to a degree, perhaps this is why so many end up under the bench doing such a job in many shacks across the globe. So my friends I challenge you, dig it out, fire it up, put it on air and enjoy what can only be described in the title of my article as "Rekindling The Magic".

Basic cleaning

The FRDX-400 that I purchased was a bit dusty and grubby, but that was soon fixed. I got out the old toothbrush and a bit of Jif and some warm water and took all the knobs off and proceeded to clean them. Once this was done I cleaned the silver face to the receiver with the same method to restore the once wonderful shine. Having heard the crackle that emanated from the mode and band switches, I obtained a can of CO Contact cleaner. I proceeded to take off the top and bottom covers and sprayed all the switches and pots I could get the nozzle into. Having rectified this, things seem to go much better upon turning the Receiver on for a tune across the 20 m Band in the late afternoon. The set handles really well with the ANL quite effective especially in combination with the Rejection Tuning control. By comparison to my FT-ONE, the FRDX400 receives just as well with very little interference or unwanted noise being received. The antennas being used were a 3 element Monoband Yagi for 20 m, as well as an End Fed "L" Shape Long Wire about 30 m long. On this particular afternoon there was a sprinkling of Europeans and a few Yanks with big signals. Even with our declining cycle their signals filled the band and came through loud and clear at my QTH in Ipswich, Queensland. On its first venture into the 20 m band after seven years of non-powered idleness, the FRDX-400 performed very well indeed for a 35 year old Receiver.

Principles of operations

The receiver itself is Double conversion with injection voltage for the first mixer provided by a crystal-controlled oscillator. A tunable IF of 500kHz range is used to couple the first and second mixer. Injection voltage for the second mixer is provided by a Variable Frequency Oscillator with a tuning range of 500kHz ganged to the IF tuning capacitors. The 455 kHz output

Technical Abstracts

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Balanced line antenna tuner

Most antenna tuners cater for balanced lines by providing a 4:1 balun to convert the antenna input from unbalanced to balanced. Unfortunately this is not the ideal solution as most baluns perform poorly when called upon to transform loads other than their designed resistive values often at high values of SWR.

A better approach is to place the balun at the transmitter side of the tuner where the balun is dealing with a near to unity SWR and to use a tuner design which is balanced. This gives a far better result but does require the tuner to be configured as a balanced tuner.

A suitable design has been released by Palstar and is their AT1500BAL design. It was announced in the UK in Practical Wireless in their Radio News page in their April 2003 edition. The website for Palstar is www.palstarinc.com . Palstar is a United States company .

The Palstar AT1500 BAL places the balun at the transmitter side of the tuner and uses a Balanced L network using two roller inductors and a single capacitor. The roller inductors are mechanically coupled so that there are only two tuning controls. A switch is used to enable both high impedance and low impedance balanced loads to be matched. The design is capable of handling USA power levels and has a 1500 W PEP rating.

Adding a crowbar notes

In June 2003 AR Tech Abstracts an item originally presented by Ian White G3SEK in his January 2003 In Practice column in Rad Com was presented. This has stirred up some interest both locally and in the USA. The USA interest was from K8KK who contacted G3SEK directly.

Locally Ray VK4BLK contacted AR. Ray VK4BLK pointed out that the circuit was only suitable for use with a positive rail regulator as shown in the circuit presented in AR. This is true. To use a crowbar with a negative rail regulator the circuit would need to be redesigned.

The matters raised by K8KK were published in the June 2003 Rad Com In Practice Column by G3SEK. K8KK pointed out firstly the need for diode D1 which had been omitted from the original Rad Com circuit. In addition K8KK cautioned use of the circuit in a power supply used to charge a battery as the crowbar would attempt to discharge the battery causing considerable distress to the circuitry and present a hazard. The solution proposed to the battery charging problem was to use an isolating diode in series with the battery. Alternatively do not use a power supply fitted with the crowbar to charge a battery.

Rekindling the magic

continued from previous page

frequency is coupled to the 2nd IF stage to separate AM, SSB, and FM detectors. Injection voltage to the product detector is provided by a crystal controlled BFO.

RF and mixer circuit

The incoming signal from the antenna passes through a trap coil which minimizes interference caused by the signals of the first IF range to the tuned circuit, and is applied to the control grid of the RF amplifier tube, V101, 6BZ6, (or the an optional 6EH7). The tuning capacitor for the RF amplifier and first mixer is ganged and linked to the preselector tuning knob on the front panel. The required tuning range of these tuning circuits for band spread are obtained by switching appropriate values of fixed capacitance in parallel with coils. The amplified signal from V101 is coupled to the grid of V102A, 6U8, first mixer. The injection voltage from V102, 6U8, is coupled through L110, tuneable IF transformer (5354.5 kHz ~ 5954.5 kHz) to the grid of the second mixer V103, 6BE6, with VFO injection voltage applied to the cathode of this tube.

And so it goes through various other stages until the signal reaches the audio amplifier and is reproduced at the speaker for the listener's enjoyment. I must admit to not being the most technically brained person to ever attempt to write an article of this nature, so I will beg forgiveness now and trust that the above description of the sets operation is suffice to give my fellow Hams a basic idea of the way the set works. The valve line up for the unit is as follows,

V101- 6BZ6, V102 - 6U8, V103 - 6BE6, V104 - 6BA6, V105 - 6BA6, V106 - 6BM8, V107 - 6BZ6, V108 - 12AT7, V501 - 6U8, V601 - 12AT7.

For my money the Yaesu FRDX-400 is quite a nice set when it is all said and done, and one, which I derive a lot of pleasure from using on the Ham bands most days. I have been reliably informed that Bail Electronic Services sold quite a few of these Yaesu Twins and that there were never any major faults or complaints reported back to the dealer. Perhaps you have over the past 30 years or so owned, used, or still have and operate one of these Receivers or even the Twins themselves.

I would be most happy to hear from you if this is the case as I would like to exchange ideas and perhaps information and mods if by chance you have any. If, like me and some others, you share the dream of rekindling the magic of the 1960s and 70s with this somewhat classic style of equipment, sing out say hello and share the information and experiences you have had using it. Maybe you made DXCC on the FTDX400, or some other similar milestone, then drop me an e-mail or write to me as I would look forward to hearing from you. For me as a Ham of some 20 years, I just love the look of the series and enjoy using it, knowing that it has been giving good service from the 1960's to this the 21st century.

In my next article I will attempt to bring to light the Transceiver version of these two sets, being the Yaesu FTDX400.

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Education Page

Ron Smith VK4AGS
Federal Education Co-ordinator

Project the Experience

Last time I looked at the PBL (Project Based Learning) concept. I promised I would this time look at some possible projects.

There are many different projects possible. The design of projects is not easy or hard but it does take some careful thought. The main example given here and some other possibilities are not exhaustive in any way. They are simply some suggestions to demonstrate some possibilities.

In designing projects, a most important aspect to consider is that the project is the learning environment and not an end in itself. The next step to consider is that the project is usually performed by small teams. Collaborative learning where the student takes responsibility for the learning is now known to be far better than prescribed or directed individual learning. Also important is the need for the student to keep records of the learning process and use these records to support a claim for adequate learning.

At first glance a PBL project can look like any other project or assignment. However, close inspection will reveal crucial differences.

A very basic PBL project might look like:-

Design and construct an antenna for an amateur band. Verify the operation of the antenna.

This project should be reported as a written report defending the choice of antenna design and showing the results of any measurements.

On the same sheet as the project it is usual to include some possible syllabus outcomes this particular project might support to give some focus for students. While outcomes are usually generic the relevant outcomes for this project might be:-

- Have a knowledge of different antenna designs.
- Be able to perform basic calculations.
- Apply the principles of antenna matching.
- Apply the regulations relating to amateur transmissions.
- Understand the responsibilities with regard to interference.
- Know the frequencies allocations for amateurs operations.
- Operate basic radio technology measuring equipment.

(Please note that these would not necessarily be only covered in this project, or even covered to sufficient depth in this one project.)

The standards for an ultimate pass for an award might be (again generically stated):-

- Correctly perform calculations to obtain correct values.
- Apply the regulations correctly.
- Use measurements and calculations to verify the operation of radio technology to a satisfactory level.

For even a project like this each team would commonly adopt a different approach. However it is likely any team would include some similar basic steps along these lines.

To complete this project the team or group will have to research different antenna designs to defend the choice. They would also have to look at the spectrum available to amateurs to determine the frequency to use.

the project is the learning environment and not an end in itself.

While they could copy a design from a textbook, it is not in their interests to do so. They would omit some of the outcomes if they did. The textbook approach might produce a successful antenna but that is not the purpose. The project is the learning environment, not an end in itself. For example, if the textbook approach was taken, students could not claim the calculation outcomes. So it would be better if they calculated the lengths and then could show the calculations.

They would have to research the regulations and find that they cannot transmit on an amateur band unless under the direct supervision of a licensed operator. They would also have to operate a rig in receive mode to check the presence or otherwise of other stations to avoid interference to determine a frequency to do the testing.

They would also need to consider the identification of transmissions requirements.

They would then (under supervision of course) have to operate the necessary measurement equipment, most likely a VSWR bridge, to test, adjust, etc the antenna.

Some students would also find the EMC requirements to be an outcome to consider as well.

They then have to ensure they have records for the report and evidence to include in their ultimate claim of having a "pass".

Both the writing of the report and the claiming of the "pass" involve revisiting the ideas. If you like, these are a double revision or consolidation of learning, even if the students don't realise this.

The project does not specify an antenna design, a band, or a frequency. It does not give specific instructions. It involves technical, regulatory, and operational aspects. In essence it is holistic which is closer to what really happens outside the 'classroom'.

It does not matter if the antenna actually works or if any project is successful. (They usually are.) The important idea is the learning about antennae, operations, measurement,

calculations, and regulations.

Here are some more possibilities. If you look at these you will see how the students have to make interpretations and decisions during the project and as such have to delve into learning about communications technologies and the 'rules" before making any decisions. It is possible to again see the holistic approach setting the learning environment. The topics are not specific. There are no 'right answers' to the projects.

1. Design a UHF/VHF voice repeater network for a town/district/city at least 200km from your location.
2. Write recommendations to the local counter disaster organization about establishing and maintaining communications between your location and another location 500km away during 24 hours in the event of total failure of the official communications system.
3. Investigate various designs of crystal oscillator and then build a crystal oscillator, determine its frequency and the levels of any harmonics. Report on the construction and measurements, and explain your choice of design.

PBL is an excellent educational tool when implemented properly. It will not always be possible to use it. The schools I have spoken too would be quite attracted to amateur radio if something like PBL was available to them. At this exciting time of restructuring it is important to seriously consider the utilisation of cutting edge educational methods and to have an implementation structure to allow for the possibility of implementing a range of educational methods, including those yet to be 'invented'.

What will the New Year bring? Let's see.

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QE46 Cape Hauy VHF DXpedition

By Rex Moncur VK7MO

The Cape Hauy VHF DXpedition was designed to activate the rare grid square, QE46, on the South East Coast of Tasmania by taking advantage of the new digital modes, JT44 (for tropo scatter) and FSK441 (for meteor scatter). The DXpedition involved backpacking a VHF station over 4 km of very rough terrain and overnighting in a tent. The project was a team effort with members of the VK7 Southern Branch of the WIA assisting in the deployment and recovery of the station and providing liaison. Despite a storm and wet gear the DXpedition demonstrated that with the new digital modes two-metre contacts of up to 1400 km and more can be achieved with a small station that can be backpacked into remote area.

Grid squares and VHF

While chasing countries and a DXCC is a popular HF (and six metre) activity VHF operators (two metre and above) gain a similar sense of achievement by chasing grid squares. Grid square standings are announced regularly in AR. For an explanation of grid squares refer to page 152 of the 2003 WIA Australian Amateur Radio Call book. Grid squares are one degree of latitude by two degrees of longitude and are roughly 100 km square. Only contacts from land areas count for grid squares. Up until a year ago the top Australian stations had collected up to around 70 grid squares using mainly SSB. In the main these were from home stations but a few were from portable stations going to rare squares. The problem in undertaking DXpeditions to rare squares was that beyond a few hundred kilometre one can spend a lot of effort on SSB for a nil return.

Within the last 2 years new digital modes have been developed that allow regular 2 metre contacts by tropo scatter up to 700 km and via meteor scatter up to around 2000 km. These modes have enabled a number of stations to make rapid increases in their grid square scores and one (VK2FLR) has now achieved the magic 100.

VHF digital DX modes

Joe Taylor, K1JT, has produced a computer program called WSJT (Weak Signal communication by K1JT) that has modes specifically designed for VHF propagation - FSK441 for meteor scatter and JT44 for tropo scatter. For information on these modes and activity in Australia refer to the NSW VHF DX Group web site at http://www.vhfdx.oz-hams.org/ and then click on "Digital Modes". These modes have put a whole new life into VHF for operators away from the larger capital cities. For example it is now possible from my home station in Hobart to make 2 metre meteor scatter contacts with VK4TZL in Harvey Bay and ZL3TY in Greymouth, New Zealand using FSK441. Using JT44 I have regular tropo scatter contacts with four or five VK3s each morning.

FSK441 exploits the fact the signal reflected from the relatively frequent under-dense meteor trails (typically around one per minute) can peak a few dB above the noise for a fraction of a second. To take advantage of these weak and short signals WSJT sends a repeated message at around 8000 words per minute within a standard SSB passband. A meteor burst of just 100 ms is sufficient to send two calls signs and a report. The height of the meteor trails (typically 95 km) is such that distances of up to 2000 km can be achieved.

JT44 is designed for very weak and slowly varying signals such as those received via EME or tropo scatter. On tropo scatter it can achieve good results on signals that are more than 20 dB below the noise in a SSB passband. The mode has allowed modest single yagi stations to complete EME contacts and to make tropo scatter contacts of 600 to 700 km on a regular basis.

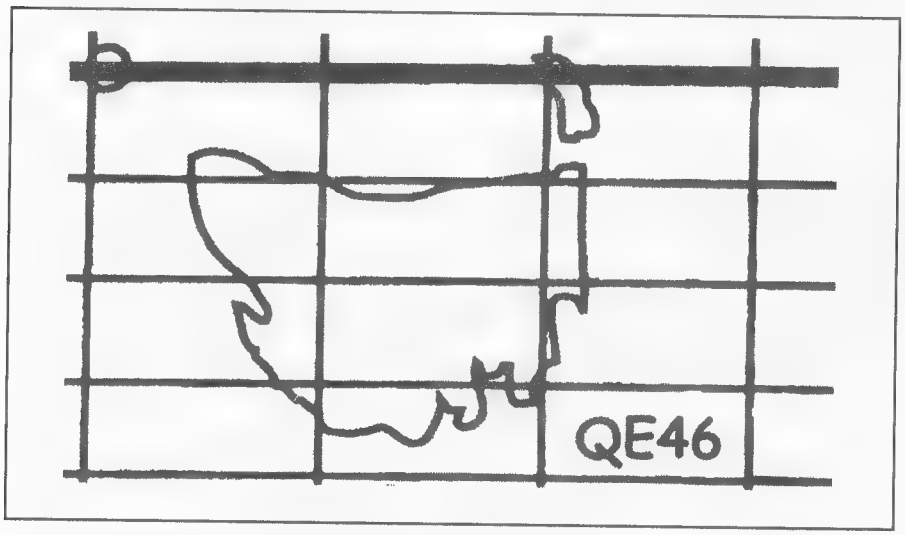


Figure 1 Location of Grid Square QE46, derived from Map by VK4KNH Page 21 AR November 1999.

QE46 Cape Hauy

I have had much fun conducting portable operations using the new modes from a number of rare grid squares in Tasmania and outback SA/NSW/QLD. All the squares accessible by road in Tasmania have been activated and thus at one of the "Wednesday" lunchtime get-togethers of the VK7 Southern Branch the discussion focused

on the more difficult squares. QE46 presents a special challenge in that it is not possible to gain access by car. As shown in the Maps, Figures 1 and 2, the land area of Tasmania just penetrates within QE46 at Cape Hauy.

I undertook a reconnaissance trip to check out Cape Hauy, reporting to the "Wednesday" group that I did not make it all the way to the grid square as the track was too rough and steep. The project was impracticable, given that all the equipment would have to be carried in. Not to be deterred Ian VK7IR, responded that he was willing to take the equipment in if others could help. Ian is a keen walker who keeps himself fit after a successful quintuple bypass 3 years ago. The next weekend Ian called for volunteers on the VK7WIA broadcast and the project gathered momentum. I decided on another reconnaissance trip and this time made it to a point where my GPS indicated that I was just within the square. At this point there was a good take-off to VK1/2/3/4 and 5 as well as ZL and a reasonable spot to pitch a tent.

Planning, discussion and testing proceeded at the "Wednesday" lunchtime get-togethers. This involved setting up and operating the complete station and then establishing that we had enough people prepared to carry it all. A successful trial of the backpack station was undertaken from the lawns outside the WIA Southern Branch clubroom with contacts to Guy VK2KU and Mike VK2FLR. Eric L70150 a short wave listener volunteered to overnight on the DXpedition with me. All was now ready for the DXpedition on the first weekend of March 2003.

Equipment

The plan was to take 2 metre and 70 cm and home brew antennas were constructed that could be easily dismantled and assembled. A centre-fed driven element with my own half wave sleeve balun was employed as this has proved a robust arrangement for portable operations. All elements were colour coded for easy erection in the field. For previous portable operations I had used a lead-acid battery to provide a stable 12 volt supply and charged this from a genset. A lead acid battery was out of the question due to weight and also the risk of spilling acid. The solution was to use the genset to directly power a lightweight switch mode power supply.

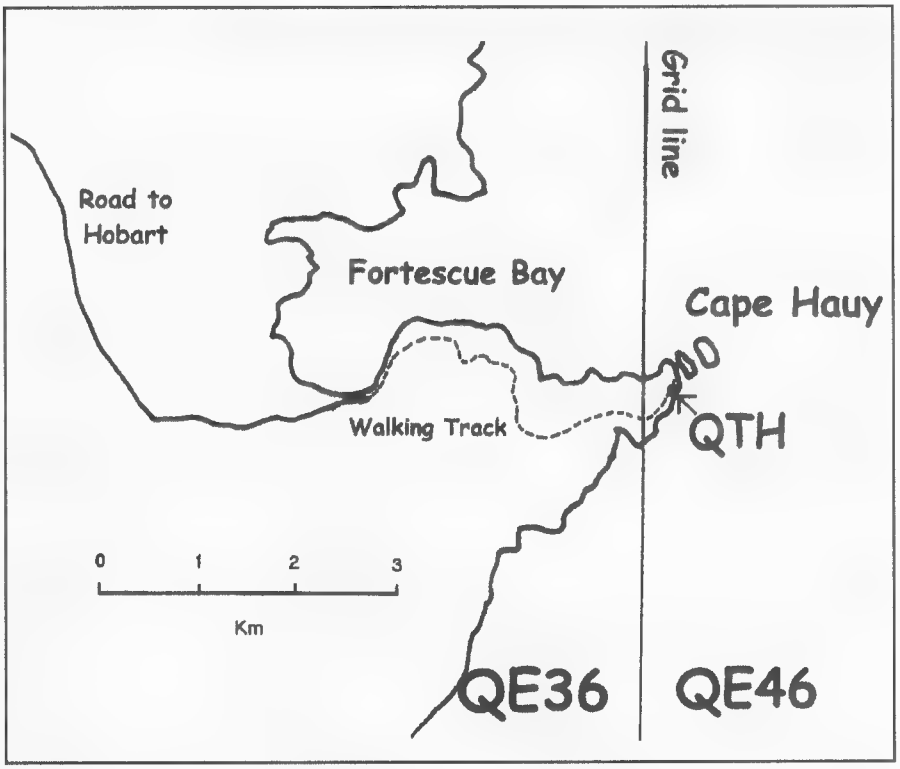


Figure 2 Location of QTH and walking track

In turn this presented a problem in that the genset was a Honda EU 10i with a solid state inverter and the switch mode had a specified in-rush current of 40 amps at 240 volts AC. Even though this is for only a few milli-seconds I was cautious about exposing the inverter to what was in effect a short circuit at 240 volts. A surge protector was developed to slowly charge the switch mode and delay connection of the load. Based on experience of portable operations a reverse polarity protector was also included. Tests were conducted on fuel usage that came out at 300 ml per hour, enough for 16 hours operation from a 5 litre plastic jerry can. To meet the requirements of weight and simplicity a linear was out of the question so an IC-910 H with a nominal 100 watt output on two metre and 75 watt on 70 cm was used. In practice the IC-910 H is very sensitive to SWR and under voltage and the best we achieved was 60 watt output. A Dell laptop running WSJT and home brew interface completed the radio equipment. Of course we needed to overnight to be ready for the meteor peak in the early morning and thus we needed a tent, sleeping bags, food and water, because there was no water on the route. All in all some 60 kg to be carried in.

The DXpedition

The first concern was when I picked up Eric early on Saturday morning. He had just heard the forecast for the evening: "A bushwalkers' alert with 20 to 30 knot winds, rain with snow on the mountains". However, with so many people organised we decided to make a final decision to proceed on assessing the weather at Fortescue Bay, the departure point to walk to Cape Hauy.

We were farewelled from Fortescue Bay by a King Penguin. When we got to the site I had previously selected my GPS said we were in QE46 but VK7IR's GPS said we were not. It turned out that the difference was due to us using different datums. (Datums are a mathematical model of the Earth used by map-makers to take account of the fact that the Earth is not an exact sphere and these have been refined over time resulting in a change of up to 200 metre in positions in Eastern Australia around 1990) After a quick phone call to manager of the grid square list (Guy VK2KU) to check on the correct datum we decided to walk on to make sure. The next problem was to find a suitable spot to camp with a good take-off to the North and to ZL. We kept walking until all GPSs showed we were well inside the

square. However, the only spot we could camp was on the track and there was insufficient room to put the tent up properly. The Honda EU 10i genset was set up around 30 metre down the track where it produced minimal RF noise unless we beamed at it. It was interesting to have perhaps 50 bushwalkers climb around our tent and antennas with Eric giving them a thumbnail explanation of grid squares and meteor scatter.

Once we were set up we completed contacts to Trevor VK7TS in my home grid square on SSB and JT44 on 2 m and 70 cm, so at least I had the square.

We were a few minutes late in turning the beam North for the VK3 JT44 time slot but as soon as we did I was surprised to see a good -17 dB signal from Ron VK3AFW. We completed with Ron and then with Charlie, VK3FMD on JT44 and continued to call CQ until around 8.00 pm and then when nothing further was heard we worked some more locals and went to bed.

The wind started to build up and heavy rain fell. Around midnight Eric woke me to say we have a leak. Once we found a torch the "leak" proved to be half an inch of water over half of the floor area of the tent. I picked up the switch mode power supply and water dripped from it. The way we had set up the tent combined with the strong winds had funnelled water through the tent door. Eric modified the tent to improve things and then set about using a cotton scarf to mop up the water and squeeze it into a saucepan. By about 2.00 am the tent was clear of water and with partially wet sleeping bags we settled again. Eric asked me if the generator would work in the heavy rain. I said I thought the generator would be OK but I was concerned about having 240 volt to a wet switch mode power supply in a wet tent. A little after 5.00 am I woke and rang Bob ZL3TY to cancel the ZL sked. Eric asked if I thought the recovery team would come out in this heavy rain!

After this we did further work on drying things out and it seemed that no water had gone inside the switch mode. A little before 6.00 am we started the genset and to our relief nothing produced smoke or funny smells and RF was going up the stick. We then had a good session on FSK441 working a number of mainland stations, as far as Coffs Harbour, and after 10.00 am another local session on FM. The recovery team arrived a little after midday. With heavy packs we struggled back and then drove home.

Results

The following is a list of notable contacts completed in addition to 40 VK7s we worked on SSB or FM. First report is sent and second received, JT44 reports are in dB below the noise.

The two metre tropo scatter contacts with VK3AFW and VK3FMD were especially pleasing as the distances were over 600 km. There was no tropo lift (Hepburn's tropo index showed black), the path was over the mountains in the center of Tasmania and we were using just 60 watt to a short (2.7 metre) boom length yagi.

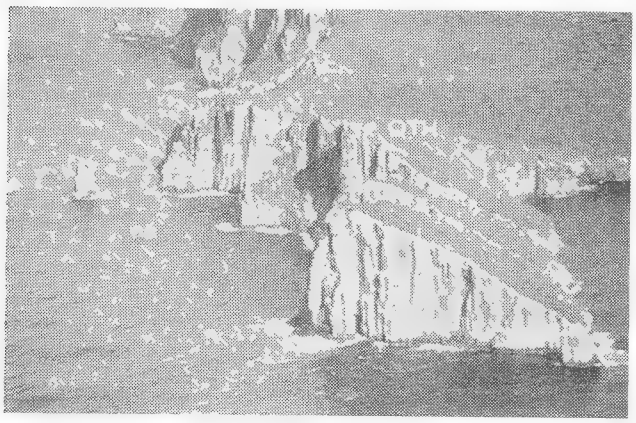


Figure 3 View of Cape Hauy showing location of QTH

VK7TS	SSB & JT44 both two metre and 70 cm 59+ both ways					
VK3AFW	JT44	2 m	-17	-23	tropo scatter	642 km
VK3FMD	JT44	2 m	-21	-19	tropo scatter	637 km
VK2KU	FSK441	2 m	27	26	meteor scatter	1068 km
VK2AWD	FSK441	2 m	26	26	meteor scatter	1086 km
VK2 FZ	FSK441	2 m	26	26	meteor scatter	1067 km
VK1WJ	FSK441	2 m	16	38	meteor scatter	1067 km
VK2JKK	FSK441	2 m	38	26	meteor scatter	1486 km
VK2EI	FSK441	2 m	28	26	meteor scatter	1371 km
VK2FLR	FSK441	2 m	37	16	meteor scatter	1067 km
VK3AXH	FSK441	2 m	16	26	meteor scatter	711 km

Figure 4 Ian VK7IR receiving the farewell

Figure 5 QTH with 2 metre beam

Acknowledgements

Thanks to Eric L70150, particularly for solving the water problem, the deployment team of Ian VK7IR, Ian VK7IF, Mike VK7MJ, plus wives and friends; the recovery team – Brian VK7HSB, Roger VK7HRN, Gavin VK7HGO plus wives and friends; the liaison team – Dave VK7DM and Bob VK7KRW, also Trevor VK7TS who operated my home station and all of the stations who worked us, or tried.

Robin L. Harwood VK7RH

Farewell Radio Norway

I recently received news that Radio Norway International will cease broadcasting on shortwave as from the 31st of next month. For many years the two transmitting sites at Sveio and Kvitsoy have also been broadcasting Radio Denmark International. The first half-hour would be Radio Norway and the second half-hour would be made available to the Danes. Recently VT Merlin took over management of these senders and acquired other clients to utilise the senders and this will be continuing despite the Norwegian decision. These have been used by Burmese and Tibetan exile groups and for a short time by an Afghan group. The BBC World Service has also been heard via these Norwegian Senders. It turned out that a Norwegian domestic network relays London overnight to dawn Although the broadcaster in Oslo may have left, the senders will be continuing relaying Denmark and other clients.

NZ back online

Radio New Zealand International has been off-air since the end of August when the station near Taupo was hit by lightning. It has taken some time to get the necessary spares parts for the damaged sender. As I reported last month, RNZI had to hire airtime from Radio Australia at Shepparton between 1700 and 2115 on 9580. They are still not operating at deadline time but they do expect to be back online in mid-October. Here is their proposed schedule from the 26th of October to the last Sunday in March. Note they are planning to operate for the full 24 hours

1650-1750, 6095, NE Pacific, Daily
1751-1850, 11980, NE Pacific, Daily
1851-2239, 15265, Pacific/Europe, Daily
2240-0359, 17675, Pacific/West Coast USA, Daily
0400-0705, 15340, Pacific/Europe/Mid West USA, Daily
0706-1105, 11675, Pacific/Mid West USA, Daily
1106-1259, 15530, NW Pacific/East Timor/SE Asia, Daily
1300-1649, 6095, Pacific, Daily from 1.9.03

Radio Netherlands in Hilversum also made some hard budgetary decisions with the result that English broadcasts were scaled back to be an hour. This means that English broadcasts to this region are now as follows:-

English Schedule 26 Oct 2003 - 28 March 2004 (all times UTC)

To North America

1200-1300 on 5965 kHz
1900-2100 (Sat/Sun) on 15315, 17725 and 17875 kHz
0000-0100 on 9845 kHz
0100-0200 on 6165 kHz
0400-0500 on 6165 and 9590 kHz

To Africa

1800-1900 on 6020, 9895 and 11655 kHz
1900-2100 on 7120, 9895, 11655 and 18710 kHz

To Europe

2200-2300 on 1512 kHz
To Asia, Far East & Pacific
1000-1100 on 7260, 9785, 12065 and 13820 kHz

To South Asia

1400-1500 on 12070, 12080 and 15595 kHz

In addition, several regular programs were axed or incorporated into existing programs.

Radio Sweden also seems to have modified their broadcasts to Australia and NZ. The only English release audible in this region will be

1330-1400 AS/NAM 9430 17505 18960
1430-1500 ME/AF/AS/NAM 17505 18960
2030-2100 EU/AS 1179 6065 9400(9415)
2230-2300 EU 1179 6065.

Broadcasts in Swedish to this region will be heard on 18960 in our late evening hours.

Well that is all for this month. Until next time the very best of listening and 73

QE46 Cape Hauy VHF DXpedition

Continued from previous page

Conclusion

The DXpedition met its primary objective in demonstrating that a small backpacked station can be used to make contacts of 1400 km and more on two metre to activate rare grid squares. However, something unforeseen by me at the time was that the exercise also engendered a great team spirit in the VK7 Southern Branch WIA members who are now asking when they can contribute to the next grid square project.

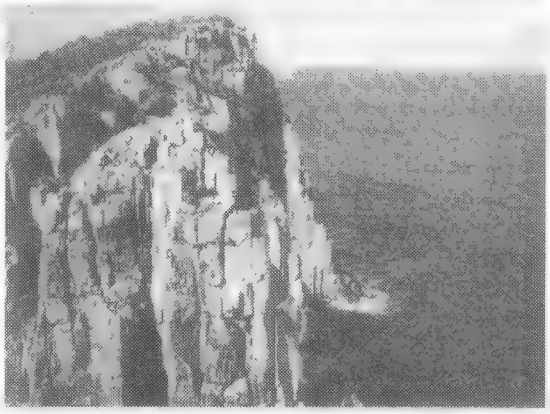
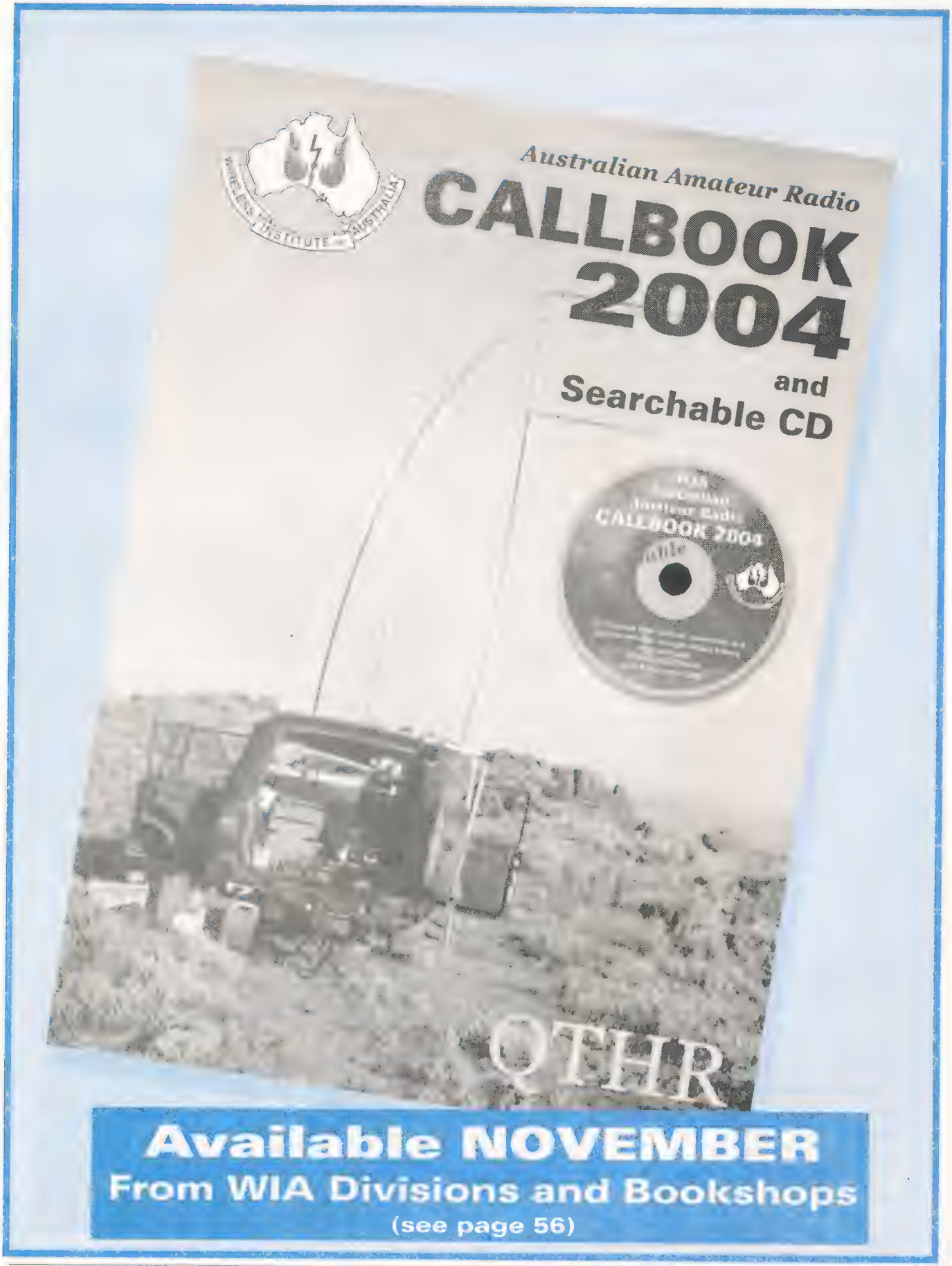


Figure 6 View from the QTH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(see page 56)

Technical Abstracts

6146 replacements

An item concerning the various types of the generic 6146 used in many transceivers was brought to my attention. The item originally appeared in QST May 2002 and then in Break In in the Technical Forum Column of John Walker ZL3IB.

The 6146 which is used in most transceivers is the 6146B which is an improved version of the original generic 6146. The 6146B offered a plate dissipation of 35 watt which is considerably higher than the original 6146's 25 watt plate dissipation. The 6146B also offered other improvements including an improved heater design as well as the higher plate dissipation. It was designed for SSB service and hence it found its way into many transceiver designs.

The 6146W is a ruggedised version of the 6146 and also has a 25 watt plate dissipation.

The 6146A was a first generation design improvement but still had a 25 watt plate dissipation.

The 6146B was a significantly improved design which was made for SSB service and offered an improved heater design together with a plate dissipation of 35 watts.

If you are considering replacements for a transceiver final amplifier make sure you get the appropriate version of the 6146. If you have to replace a 6146B then use an exact replacement or be prepared to modify the operating conditions to suit the 25 watt rating of one of the other 6146 types.

Compact fluorescent lamps

Compact fluorescent lamps have become popular as a substitute for the incandescent bulb used for much household lighting. They are publicised extensively and their purchase price has reduced considerably. Sometimes they are even promoted by subsidised purchase schemes and even given away to promote their use and save energy used for lighting.

However, there have been some problems with their use, which can have an effect on users of the radio spectrum. The older style fluorescent tubes had some problems for radio users on occasions when they generated noise. The newer compact fluorescent lamp operates at a much higher frequency provided by an inverter circuit in the base of the lamp. This allows small and light components to be used in place of the older heavy ballasts. The inverter works in the range of 30 to 50 kHz.

In the *EMC* column of David Lauder G0SNO in *RadCom* for February 2003 there is a report of interference caused by compact fluorescent lamps on 144 MHz, and in the 160 MHz region to business two way radios. The interference was noticed by Dave M5ABH who works in the service and installation of two-way radios in Nottingham. The company Dave works for had customers experiencing interference and worked with the authorities, the UK equivalent of our ACA, to find the cause.

The interference was traced to compact fluorescent lamps, which had been given out by a local authority to people on benefits to help them with their electricity usage and bills. Unfortunately the lamps given out proved to be faulty, producing broadband RF interference between 140 and 200 MHz. The lamps met the relevant UK standard, which only required testing for RF emissions below 30 MHz.

Investigations and negotiations were reported to be continuing between the various authorities and users, and the manufacturers of the compact fluorescent lamps.

The case was reported in the press and other reports of interference from other compact fluorescent lamps were reported. These included RF interference to 49 MHz baby monitors and interference to remote controls.

The interference to remote controls is usually not an RF interference issue but is an optical compatibility issue. The modulated light from the lamp at the inverter frequency can interfere with the infrared light sensor used to receive the infrared light output from the remote control. The inverter operates in the 30 kHz to 50 kHz region, which apparently is within the frequency range for the modulated infrared beam emitted by the remote control. This can interfere with the operation of the remote control system.

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Andy VK3IV

Division News

VK1 News

Forward Bias

Peter Kloppenburg VK1CPK

Today's modern amateur radio transceivers don't often break down, but their compact construction makes it very difficult for most of us to attempt to do repairs to them. But most Radio Amateurs are capable of doing radio repairs because they either have had the experience or they have the theoretical knowledge and know-how. This is probably one of the reasons that many take up an interest in restoring antique radios. This interest is well catered for by the 'Historical Radio Society of Australia' (HRSA), which organises exhibits of antique and restored radios, as well as sales and auctions. An all-day market and get-together of Friends, Forums and Frenetic Fun, organised by the HRSA, was held at the Australian National University (ANU) Concert Hall, Balmain Crescent, Acton, ACT on Sunday, 14 September. The hall comprised 25 stalls, almost each of which offered antique broadcast radios, phonos, parts, and literature. In addition, there were Workshops, and a film "AWA at war", on "Working in Bakelite, Reproducers & Soundboxes, and Aussie Military radio". Many of the visitors wore membership tags of the HRSA, and some of them confided to the ACT-WIA membership drive stall, that they were licensed Radio Amateurs looking for a bargain. The WIA presence there was part of the membership drive that started in early September and will run until the AGM in February 2004. Two of the visitors (Lyle Carpenter, VK2ZCC and Charles Muller, VK1ZCM) signed up as members of the WIA on the day.

On Monday, 22 September, the subject of discussion at the General Meeting of the ACT Division was 'How to respond to the ACA Discussion Paper'. The President, Alan Hawes, VK1WX, led the discussion and also reported on the Extra-Ordinary Meeting of the Federal WIA that was held at the WIA-NSW Division in Parramatta on Saturday, 20 September, where the subject of discussion had been the same. The final outcome on both occasions was that almost everyone agreed that the Foundation Licence as operating in the UK should be adopted as an entry licence to Amateur Radio in Australia, with only minor modifications to the band plan i.e. no operations on 2210 - 2177 metres (0.1357 - 0.1378 MHz) and 4.286 - 4.255 Metres (70 - 70.5 MHz). There was some agreement that if the ACA goes ahead with the absorption of the Novice licensees into the body of the AOCP licensees, an intermediate licence may be needed to provide a realistic bridge between Foundation and AOCP licences.

Another important meeting occurred on Wednesday, 24 September, when radio amateurs from the ACT met with Mark Loney, Manager RF Planning Group ACA, at its offices, to discuss the implications of some of the proposals put in the ACA's 'Discussion Paper'. The meeting was held at an informal level and provided a clearer understanding of the reasoning behind the various proposals. During the discussion, many questions of concern to radio amateurs were answered. Hot topics were the 'No interference Policy'; Class or Apparatus Licensing; Discontinuation of the Morse code requirement; the outsourcing of amateur examinations, certificates and callsigns; and Broadband Powerline Communications. The last general meeting for 2003 will be held on Monday, 25 November at Scout Hall, Longerenong St. Farrer, at 8.00 pm. Nibbles and Drinks will be provided. Cheers.

VK2 News

Tim Mills VK2ZTM

Hello there. Sorry about the lack of October news. This internet transfer system is not as reliable as its devotees appear to believe. (*Sorry, my fault. Editor)*

Australia Post has changed the Box Number for the Division's postal address at Harris Park. A 9 has been added to the start of the sequence. Please address all future mail to P. O. Box 9432, Harris Park NSW 2150. These changes have been made to the directory details in the back of AR. Would Members also note that the 1800 Freecall number to the Division only operates within NSW with a slight overlap interstate where the zone boundary crosses a State border.

Recently, the packet group AAPRA held their AGM at which they decided to close the group down. Falling membership and interest and the difficulties of filling committee positions helped them come to this outcome.

We hope that you were able to attend one of the ACA review meetings or were able to submit your comments in writing. The VK2 Council, following the Sydney meetings and the input gained from Members formulated their response as the Divisional submission.

Most of the Affiliated Clubs finally submitted their updated details to the office. Most should have received their renewal notices from the Insurance Broker and have paid up by the due date. The end of this month is the next Conference of Clubs. It will be held at Amateur Radio House – Parramatta - on Saturday morning, the 29th November. By now your clubs should have submitted any agenda items or other matters for the conference.

The final exam being conducted at the Parramatta office for this year will be on Sunday the 23rd November. The closing date for applications is Tuesday the 11th November. The first exam at Parramatta for 2004 will be in February. Other dates for Parramatta based activities are the Experimental Construction nights on the first Tuesday of the month – being 4th

November and 2nd December. There is a Trash and Treasure on Sunday the 30th November. It is followed by the bi-monthly Home Brew gathering. The last Radio Veterans meeting for 2003 will be on Thursday the 20th November. On Saturday afternoon the 29 th November there will be the Division's Xmas party. Non members attending activities at Parramatta are now being asked to pay a $5 cover charge.

With the Christmas season approaching there is often the problem of what to put on your request list. You can always drop a hint about the VK2 Bookshop – details of which you can find from the Web pages. Interstate WIA Members may obtain a member discount from the Bookshop. Some Divisions have made an edited copy of their membership list available, others have not. If you are from interstate and the VK2 office does not have your details on file you may have to make prior arrangements for the discount. There is not the margin in the sales to seek details from your Division on your membership status.

WICEN NSW Inc is providing safety communications again to the Hawkesbury Canoe Classic over the weekend 8th and 9th November. Contact with VK2 WICEN may be made by telephone 0408 397 217. By Email – operations@nsw.wicen.org.au – Web – nsw.wicen.org.au – These facilities are provided courtesy the Physics Department of Macquarie University.

A brief run down on one of the Affiliated Radio Clubs. The Hornsby and District Amateur Radio Club operates on the Upper North Shore of Sydney. They meet twice a month with an informal gathering on the 2nd Tuesday and a business meeting on the 4th Tuesday. The meeting location is the Mt. Colah Community Centre, Pierre Close, Mt. Colah. It is opposite the local railway station. Contacts are Neil Imrie on 02 9477 2061. Classes are conducted twice a year and details from Tony Lamacchia on 02 9487 3383. A net is held on Monday night at 8 pm under the Club callsign – VK2MA – using their linked repeaters VK2RNS on 147.250 and VK2RAT on 439.975 MHz. They also operate packet repeaters and have involvement with other local activities like VK2WAH. If you would like a mention of your Club or group in the VK2 notes pass the details to the VK2 office for my attention.

There is more interest than we thought in the operation of the slow morse facility – particularly on 3699 kHz. Besides learning the art, it is used as a band opening indicator in VK5. We still like to hear of those using this and the beacon systems. It helps justify the power bill [and the green house gases]. While on the subject of beacons – and I know the following gets the ire of users – what real difference is there between operating beacons with vertical or horizontal antennas? Once correcting is made at the receiving end for the polarization, is there a problem? It would be much easier with the VK2RSY installation at Dural to install vertical antennas. We still have the problem that the present 6, 2 and 70 systems have their antennas temporarily placed at roof level, this move resulting from the previous low tower (at 12 metres) getting rust in its legs. Much of the RF is now lost in the local trees. The antennas are currently crossed horizontal dipoles, a single bay for 6 and 2 bays for 2 and 70. There are plans for these to be relocated to one of the wooden poles to give them elevation above ground and the local trees [20 metres] but it will be an expensive exercise, both in co-ax and mounting. A multiband vertical could be a more economic answer. If you have an opinion – either way – please write or Email the Dural Technical Committee via the Divisional office.

Until next month or when next the notes fight their way through the Internet system

73 Tim VK2ZTM.

VK3 Notes

Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

We now wait for the big review outcome

The ACA review of amateur regulations has now entered the stage where the submissions and ten public meetings are analysed, collated and reported.

Congratulations to WIA Victoria members who have responded to the ACA's call for input. It was good to see them among the 160 who attended the ACA public meeting on Wednesday 8 October, at St Kilda.

For a variety of reasons a number of members just could not attend. I was pleased to receive numerous "apologies" from those who wanted it known they supported the actions being taken by WIA Victoria, but were unable to be at the public meeting.

A report on the meeting was posted on the WIA Victoria website and issued via email.

The closing date for submissions has passed. Now we wait for the ACA to act, including the promise it has made to make an announcement about the end of Morse code proficiency tests for amateur licences.

There is a lot of work to be done over the next 12 months before we see the results of the ACA review actually implemented, and providing long term benefit to amateur radio in Australia.

Special event station

In commemoration of the 200th anniversary of Victoria's first European settlement, WIA Victoria mounted a special event station VI3BVS at Sullivan Bay, Sorrento on the Mornington Peninsula.

Lieutenant Governor David Collins first landed in Sorrento 200 years ago, and established a camp of 460 people.

The special event station VI3BVS was a day-time only operation on Sunday 12 October, at the exact spot where the first settlers arrived.

Operators were Ron Cook VK3AFW, Jim Linton VK3PC, and Barry Robinson VK3JBR.

The set-up was an ICOM 706 MKIIIG into a multi-band vertical running about 80 watt powered by a petrol generator.

During the operation a modest 100 contacts were made including Finland, France and Japan, Mexico, New Zealand and the United States. It was strange that despite the bands being open it was hard going to make contacts.

Ron Cook VK3AFW on the mike of VI3BVS set up on a picnic bench with Barry Robinson VK3JBR and Jim Linton VK3PC writing up the log.

Among the VK contacts were those who had heard about the special event on a Sunday WIA broadcast just a short time before they searched the band looking for VI3BVS. We are indebted to the WIA broadcast officers for their help.

Some of the passing public who had arrived for other Bicentenary Victoria Settlement activities on the day stopped at VI3BVS to ask a few questions, and were surprised to learn that amateur radio was announcing the historic occasion to the world.

Appreciation is expressed to the Mornington Peninsula Shire for its permission to set up in the Tideways foreshore picnic area, Bracher PR and Marketing that facilitated our needs, and the staff at the ACA that handled the request for the special event callsign.

A commemorative QSL card will be available. QSL via VK3WI or through the bureau.

Retirements

Bill Rice VK3ABP has retired from the WIA Publications Committee after many years of service including a record stint as the Editor of AR magazine. Bill had also previously served on the WIA Federal Executive.

David Wardlaw VK3ADW has also retired as IARU Vice President following a long and devoted service to amateur radio's international body. He has played a key role in the IARU's preparation and involvement with the World Radiocommunications Conference 2003. He had been attending WRCs since 1979.

Both Bill and David are WIA Life members. The WIA Victoria Council recognises their enormous contributions and wishes them both well in their retirements.

New Murray River border repeater

The Midland Amateur Radio Club (MARC) has put a new two-metre repeater VK3RCA on air at Torrumbarry on the New South Wales and Victoria border near Echuca.

Its transmit frequency is 146.675 MHz. Tests indicate it can be accessed mobile for a distance about 40 km.

Given that it only has an antenna height of approximately 60 metre it is quite reasonable.

The VK3RCA repeater has a separate transmit and receive antennas, Phillip's 828 transceiver, voice identification and a three minute time out.

The MARC felt the need for the repeater to fill in a gap between the Shepparton and Swan Hill repeaters along the Murray Valley Highway.

It may also provide radio amateurs in the Deniliquin area a link to the south.

VK7 News

Justin Giles-Clark VK7TW

Divisional News

VK7 ACA Consultation meeting

About 30 amateurs from around the State attended the ACA consultation session in Hobart on Tuesday the 7th October. The session started at 7:30pm and concluded at 10:25pm.

General feeling from the meeting was positive. It was obvious from the comments that the ACA is wishing to extract itself from administering the amateur licence side of their business. Mark Loney, the ACA representative mentioned a number of times during the meeting that it was up to the amateur service to determine their future and this was our chance to shape it.

The class/apparatus licence type and the "no interference" policy were the two issues that attracted the most discussion and concern.

VK7 Divisional Broadcast Replay

The weekly VK7 Divisional Broadcast can now be heard repeated on Monday nights along with a QNews rebroadcast on most of the 2 metre repeaters around Tasmania at 1930 (local Tasmanian time). This rebroadcast is courtesy of Tony, VK7AX and Danny, VK7HDM.

Branch Meetings

North

The Northern Branch's October meeting was a special presentation and talk by Leon Senior from Strong Australia and was in conjunction with Western Video P/L. The evening was also sponsored by Sterling Heights Vineyard and Sanitarium Australia. Leon presented a range of Strong digital terrestrial receiving equipment and also the range of satellite equipment including the very famous Strong satellite receiver with digital PVR (personal video recording).

The talk incorporated information about the Di SEQc that will evolve with the new OPTUS C1 satellite. The talk included technical information on the frequency changes and info on the new D series satellites that are planned for the near future. There was a display of Digital TV and set-top boxes that was fed via satellite.

A great night and a look at what the new digital and satellite TV technology is all about.

North West

The North West Branch's October meeting discussed the ACA's proposals for the restructuring of the amateur regulations. The participants were very constructive in their comments. In addition some time was spent on consideration of what we considered a very big threat to our hobby - the proposed expanded use of broadband

power-line technology by our utility companies and its effect on the HF and VHF bands.

Tony, VK7AX has been at it again! As of Monday 29 September there is a voicemail facility on the VK7AX IRLP Node 6700. To the best of our knowledge this is the first IRLP Node in Australia to employ the Voicemail facility. This system is experimental and was developed by Ted, KE6YJC. Commands are entered using DTMF. For more information on how to use the facility have a look at:
www.vk7ax.tassie.net.au/VM_Commands.htm

South

Spring Radio Field Day - A Success

Father's day the 7th of September saw the Spring Radio Field day held at the QTH of Ken (VK7DY) and XYL Wendy at Orielton. It was a huge success with 50+ amateurs, partners and children attending.

The day was started by John, VK7JK reading the news from VK7DY's shack that was recorded on video for ATV. John is a sprightly octogenarian and is an active amateur and regular reader of the VK7 Divisional Broadcast.

After the broadcast call backs there was show and tell of equipment and catching up with old friends and new friends. Rex VK7MO displayed his equipment for meteor scatter and demonstrated a number of meteor pings to the interested group of on-lookers.

Ken set-up two 2.4 metre satellite dishes facing each other about 60 metre apart and sent and received audio information. There was also wireless LAN and networking demonstrations which included the interesting 802.11b WLAN waveguide antennas.

The highlight of the day was the meat cutting and sausage making demonstration by our resident butcher, Ken VK7DY, who demonstrated preparing some beef and boning chickens. Ken showed how to make Kievs and crumbing, also chicken steaks. The sausage making competition winners were, for the breakfast sausage, VK7ZBX's XYL Allison and for the pork sausage was Brian, VK7KBE.

Thanks to Ken and Wendy for opening their property up for the field day it was a great success.

Shane from Hobart Port Corporation telling the Southern Branch members about what goes on in the port of Hobart including the various communication types used.

Southern Branch October Meeting

The Southern Branch's October meeting was a visit to the Hobart Port Control Tower on the Hobart waterfront. Our host was Shane from the Hobart Port Corporation.

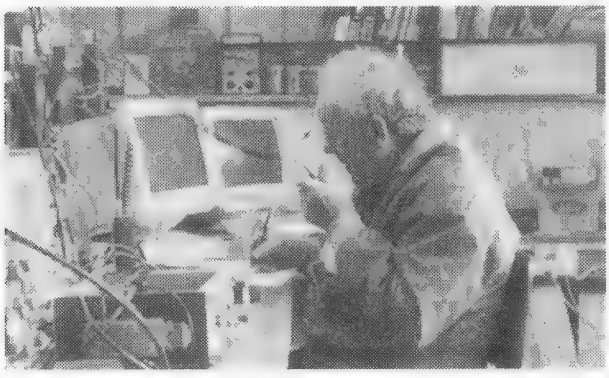
The tower was built in 1987 and is 47 metres high (about 5 storeys). Shane outlined the diverse range of functions that Hobart Ports are involved in. They look after the Ports around Hobart (Sullivan's Cove), major ports in the D'Entrecasteaux Channel, Port Arthur, Spring Bay, Triabunna, Port Davey, Pasminco and Selfs Point.

They control the Tasman Bridge whenever a large ship needs to sail under it. Hobart Ports also provide pilotage/tug facilities, security services and stevedoring around the state and in Port Pirie, South Australia. There are four tugs, three operational pilots and a harbour master.

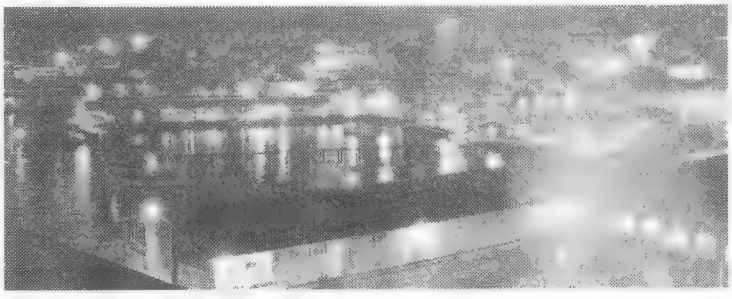
From a communications perspective most contact with ships is done through marine VHF frequencies and ships are contacted up to 8 hours prior to them entering the Port, about Schouten Island for you yachties. Channels 12 & 16 are utilised as well as the 81/82 repeater frequencies that are located on Guy Fawkes hill.

The control tower also takes over Coast Radio Hobart between 7pm and 7am each day and monitors the Marine HF emergency frequencies for the Tasmanian Small Marine Radio Group. Hobart Ports also maintain a number of automatic weather reporting buoys in the Derwent River.

It was a fascinating look into how a shipping Port operates and the diverse range of activities that Hobart Ports Corporation are involved in. Thanks to Shane for answering all our questions.



John, VK7JK reading the VK7 Divisional Broadcast from the Spring Radio Field Day at Orielton.



The great view of Hobart's CBD at night from the five story control tower.

ALARA

Christine Taylor VK5CTY
vk5cty@vk5cty or geencee@picknowl.com.au

JOTA

Did you run a JOTA station (for Scouts or Guides of any age)? Please let me know. I want to be able to tell people about you and what you do. Did you have lots of contacts? Were conditions good? Please tell me

One station I hope you heard and contacted is VK5KR. This station is run for and by the Black Forest Scouts from their campsite at Yundi. It has been operating every year in JOTA for over 30 years, most of the time under the supervision of Rufus VK5YO and Brian VK5PBL and the Scout Leader, Dirk.

During those years there have been a number of scouts and guides who have taken up amateur callsigns because they were introduced to radio through JOTA. Can you match this? Tell me about it, then, so I can tell everyone

The 222 Nets

Propagation is improving all the time during our afternoons so there are more and more European and North American stations coming through. If you have never joined the 14.222 MHz DXYL net on a Monday afternoon (0530Zulu) do try it now.

The sunspot cycle has given a lot of improvement in the conditions this year compared with a couple of years ago. Let us enjoy them.

The Net is run, most weeks by June VK4SJ or Dave ZL1AMN. Regular callsigns heard include Gwen VK3DYL, Maria VK5BMT, Dot VK5DB, Shirley VK5JSH, Alma ZL1WA, Bev ZL1OS, Lyn ZL2LL, Elizabeth VE7YL, Christa DG1TE, Sigrid DL3LG, and sometimes Walli DJ6US, Girdl SM6WXL or Linda M0CMK.

Also, remember that we should be listening for the Christmas Island and Cocos Keeling Island stations when Gwen, June and Elizabeth are there. Hope you made contact or will do so. Don't forget the QSL cards either. Let us keep Gwen busy.

You never know where you will encounter radio stories

Lloyd VK5BR was on a Probus Club outing with his XYL when, in casual conversation, he discovered that two of the other ladies had been telegraphists during the War. What is more they had been operating from a station he serviced, in VK5.

The station was underground, at Gawler, in the Barossa Valley. It was built into the bank of the Gawler River where it was very well camouflaged. (Lloyd has tried to find the precise spot, since the War, without success). All that was visible above the ground was a rusty windmill tower and an equally rusty tin shed. Lloyd couldn't find either of them when he looked along the river bank in the area where he thought the station had been.

The two ladies met as telegraphists at that station and had kept up their friendship through the years.

Later on that bus tour the group called in to a Post Office Museum (part of the Bendigo Constitutional Museum) where there were some Morse keys available. The two operators of the museum were amazed to find that there were three people in this particular bus group proficient at Morse Code, including two ladies of advanced years.

There are some skills you never lose.

Have you had a similar experience? Tell us about it.

The luncheons

At the VK5 Luncheon in September we had a new addition. Myrna VK5YW, well known in the early days of ALARA came along to join us. Myrna has not been on the air for some years but she has kept her licence valid and has attended most of the ALARA Birthday luncheons and the ALARAMEET in Perth a few years ago.

It was lovely to have her there and we hope she will continue to come along.

Remember the VK3 lunches are now only held on the odd months. Nevertheless, please go along. These were the first ALARA lunches to be held regularly so it would be sad to see them disappear altogether.

In VK6 the lunches are held on the third Friday, not the second one. Get in touch with Poppy VK6YF for more information.

Any time you are in a strange city, do get in touch with your ALARA State Rep, she will welcome you and may be able to help you meet some of the other ALARA members in that state. The list of State Reps is in the front of each Newsletter.

The lunch group – Christine VK5CTY, Maria VK5BMT, Mryna VK5YW and Jeanne VK5OJ

Nets

Here are a number of nets you might be interested in.

Monday
14.222MHz at 5300 Zulu as previously mentioned

Friday
0400 Zulu On 21.188 MHz run by Bev VK6DE, mostly for ZL and VK YLs

Friday
0500 Zulu on 14.148 MHz VE/VK/ZL

Wednesday/Saturdays
1115 Zulu on 7050/7090 MHz BYLARA Net

Tuesday
1700 Zulu 14.120 /14.180 MHz CLARA

Monday
1800 Zulu 28.433 MHz YLRY ROSES

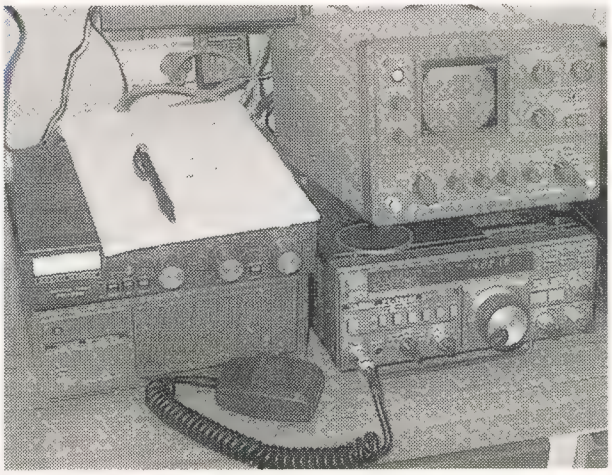
Thursdays
1700 Zulu 14..242 MHz European DX/YL Net

Mondays
1400 Zulu 7070 MHz Italian YL

Sunday
No times given 3688/3710 MHz Phone or 3533/3522 MHz CW

Also, if you are in North Queensland listen out on 2 metres for the YL Net on Friday evenings. Why not find out what the local repeater frequency is wherever you are and put out a call. People are listening just about all the time, you know.

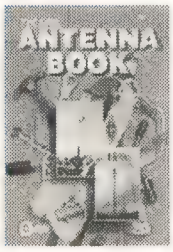
ALARA'S marvellous station donation



While the committee has not decided how best to use this we thought you might like to see some of it.
If you can tell us something about any of the keys we would be interested, especially if there is anything unusual about them.

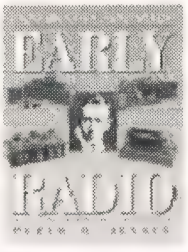
W.I.A. Bookshop

The WIA Technical Bookshop is the only one of its kind in Australia and is available to both members and non-members. CD ROMs are available for special books



ARRL Antenna Book
19th Edition

ARRL Handbook for Radio Communications 2003
80th Edition 1224 pages



In Marconi's Footsteps – Early Radio
Peter Jansen
The genesis of radio communications, the extraordinary man and his experiments

Experimental Methods in RF Design
by Wes Hayward W7ZOI, Rick Campbell KK7B and Bob Larkin W7PUA
512 pages + CD ROM

An extensive catalogue of Technical Books can be found on
http://www.wia.org.au
In Sydney call 9689 2417
Outside Sydney Freecall 1 800 817 644

Special discounts are offered to members of the WIA.
If you are not a member why not join today and support Amateur Radio in Australia.

AMSAT

Bill Magnusson VK3JT

You can 'Snoop' on AO-40's Attitude!

The time of year has again arrived when the controllers will be moving the attitude of AO-40 to chase the sun and ensure it continues to have a favourable power budget.

Stacey Mills recently announced that AO-40's attitude would be changed by about one degree per day for a month or two due to worsening sun-angles. Stacey will follow this up with regular bulletin board updates of the current attitude and progress reports during the entire process. Following this announcement, Gunther Meisse, W8GSM reminded users that those equipped with the YACER program from amsat.org could make some very interesting observations. Here's what he said. "Those interested in following the Alat & Alon of AO-40 from the shack should take note that Paul Williamson has just posted the latest version of YACER on the AMSAT.org web site. "YACER", Yet Another Camera Experiment - Revisited, is a suite of the programs that the Ground Controllers use to determine the current Alat and Alon of our spacecraft by using pictures taken with the YACE camera. While not for the faint of heart, it is truly a fun project, especially at this time of year when there is plenty of spacecraft re-orientation. The latest version, V1.05, is the same as prior versions with the exception of a bug-fix to the program ConvKeps. If you presently have YACER you can go to the AMSAT site and down load ONLY the new ConvKeps V1.5e program. Present users should probably just take the new program, not the complete suite, since the suite is an auto executable file that will re-establish the complete file structure. You will risk overwriting files that you have created earlier". Thanks Gunter and Stacey.

Setback for VUSAT

Some anomalies were found during pre-launch tests of VUSAT and it will be scheduled for a later launch.

Here is the report that appeared in an Indian newspaper early in October. The "HAMSAT" referred to is of course the satellite we will know as VUSAT. "HAMSAT which was to be a co-passenger of a remote sensing satellite onboard a PSLV later this month, will not make the trip. An official release from ISRO said here on Wednesday 8th October that the Hamsat was to be launched as an auxiliary payload using the launch capacity of PSLV. But, during the thermo-vacuum test of Hamsat, deviations in the performance of the payload were observed. After required corrections, Hamsat will be accommodated on one of the subsequent flights of PSLV".

"K" band still active on AO-40

Following several questions on the AMSAT-NA bulletin Board it has been confirmed that the "K" band operations on AO-40 are continuing as normal.

Viktor Kudelka OE1VKW has reported that he has been receiving the 24GHz beacon almost every pass since it was last turned on in August. He also reports cross band QSOs with JA and VK. "K" band is a real challenge, not only because of the engineering problems in getting 24GHz gear going in the first place but also due to many stations using mode L/S and listening only to their "S" band down link. They may not realise that their "K" band down link is sometimes too loud. This can be the case even though the "S" band down link is below the level of the beacon on that band. Viktor explains that this situation results in nearly all the available power for "K" band being used up by these stations. As if that's not bad enough - massive Doppler shift and frequency fluctuations due to temperature changes make tracking of the down link signal very difficult. "K" band is indeed a real challenge.

PCsat Enters its Third Year of Operation

Early in October a very proud Bob Bruninga declared the PCsat project a success when it entered its third year of operation.

Although PCsat was originally designed as a short-term project, Bob announced, "Today is the beginning of the 3rd year of operation. PCsat just came over the horizon and is OPS NORMAL and remains available for all users since her last recovery on 13 Sept. I see 50 users in the last 2 days". Congratulations Bob.

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an e-mail mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

All communication regarding AMSAT-Australia matters can be addressed to:
AMSAT-VK, 9 Homer Rd, Clarence Park, SA. 5034.
Graham's e-mail address is: vk5agr@amsat.org

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC.

AO-40 "Birthday Bash" continues

The AO-40 Birthday Bash to celebrate AO-40's 3rd birthday is still in progress and will continue until November 17. Join in the fun. Details are available on the AMSAT-NA web site or by e-mail from Bruce Paige, KK5DO, kk5do@amsat.org.

Adelaide Hills Amateur Radio Society

The September meeting was given an interesting talk by Jim VK5JST. He spoke about some of the rather special peripherals that can be used with computers. Such things as plan printers with several print heads capable of moving in two directions, often associated with a table also able to move in several directions.

With these it is possible to draw very complex diagrams. If tools are attached in place of printheads very complex patterns can be carved in wood or etched onto printed circuit boards. Alternatively, if laser cutters are used metals can be cut into intricate shapes and patterns.

Many of us have experimented with drawing programs capable of quite complex designs but few of us have been involved with turning those designs into real anything beyond a drawing on a sheet of paper.

If you are in Adelaide for the third Thursday of a month, contact Geoff VK5TY or Paul VK5PH QTHR the callbook, for information about the meetings of AHARS

Don't forget the AHARS Buy and Sell on Saturday 15th November in the Westbourne Park RSL Hall. It is the place to exchange your 'junk' for someone else's 'junk' and the place to meet everyone.

See you there.

Whyalla Amateur Radio Club

VK5HBG

I think it is about time that Readers of the A.R. heard from the Club that we are very active and still on air Wednesday nights. Our membership is on the increase and it is great to see past members returning. 12 members attended the meeting to discuss the ACA paper. Two members travelled to the A.C.A. meeting in Adelaide and reported back to the members. At the moment JOTA is the main topic for discussion.

The Club is in its 25th year, and a get together is planned for the end of this month or soon after.

Our three new members are studying for their novice, keep it up chaps not long to go.

The W.I. Sunday broadcast is enjoyed through the VK5RLH repeater and is causing interest within the Club.

I hear that some members are gathering old relics to start a museum, good luck with this project.

Silent Key

Bryan Robert Forbes VK3ASF

We are saddened to announce the death of Bryan Robert Forbes VK3ASF on the 1st January 2003 at the age of 71 years.

Bryan started working life in 1948 as an Office Clerk with the Victorian Railways. After 3 years he embarked on his life long association with radio, not only was it his hobby from a young age, but in 1951 he joined the P.M.G. (Postmaster General's Department) Broadcasting Division at "Radio Australia" rising to the level of Senior Radio Technician.

In 1965 he transferred to the National TV Station at Swan Hill, assisting with the installation of equipment and the Station start up. He remained there for 24 years, serving the last 10 years as "Officer In Charge".

Bryan returned to "Radio Australia" in 1989, until his retirement in August 1992. With 41 years completed service to the P.M.G. - TELECOM Broadcasting Division, Bryan ended his working life with radio.

In 1954 Bryan was granted a full "Amateur Radio Operators Licence" and until his death actively maintained his personal hobby with radio, having lifelong friends within Australia and contacts Worldwide.

He was also an active member of the Shepparton & District Amateur Radio Club, he thoroughly enjoyed the club's activities and field days.

He is survived by his wife Norma and brother Franklin, he will be sadly missed by his friends and all those who knew him.

Submitted by John Van Kerkwijk VK3ALF President, Shepparton & District Amateur Radio Club. (SADARC).

AMSAT continued

AO-40 Station Self-Evaluation

If you want to evaluate your latest effort at getting operational on AO-40 you can use the Excel spreadsheet prepared by Gene W3PM. It can be downloaded at: - http://www.amsat.org/amsat/ftp/software/spreadsheet/w3pm-ao40-v2.1.zip. It will give you a good idea of how the various components of an AO-40 station each affect the overall performance and where to spend your time (and money) to best effect.

More on Self-Evaluation

While we're on the subject everyone contemplating a move to AO-40 would do well to down load and study the "AO-40 FAQ", compiled by Steve, VK5ASF. It is now available at: http://www.amsat.org

Telemetry Challenge

Since the almost miraculous return of AO-07 many operators have found it interesting and informative to study the telemetry being broadcast on its beacon. Tim, K3TZ has written a program to decode AO-07 telemetry and it can be downloaded at:

http://www.qsl.net/k3tz/files/K3TZ_AO07_Telemetry_Decoder_0.5.zip

Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, NORANDA WA 6062
Email: vk6pg@tpg.com.au

Part 31 – *Internet trading*

Few Radio Amateurs actually build their own equipment these days. However, those that don't still need a ready access to components for small projects, like making up leads, building PSK interfaces, power supplies or kit building for fun. Some refurbish vintage WWII equipment, fiddle with QRP ideas, or build experimental antennas. The diversity is intriguing and forms the life-blood of our chosen hobby. The financial market is ever changing, and so are the radio and electronic vendors who have kept RAs supplied with 'bits and pieces' from local shops. Today, most regular dealers are out of stock, changing to trading in mobile phones and computers. So, where do we go to find ceramic coil formers, twin-gang air-spaced tuning capacitors (ATU project), double-ended 0.01uF, 350-volt polyester capacitors for a vintage receiver, or 6146's for that trusty old Kenwood TS830S? The only way to find those 'difficult' parts and components these days is via Internet Trading.

The Good Old Days!

Post WWII parts were plentiful and available everywhere for a few pence. In the 60's prices were higher but still affordable - everyone built something of significance from the myriad of first class articles in the national magazines of the day. The 70's saw the explosive commercial AR market from the Japanese, and from then onwards the parts suppliers slowly diminished with the onslaught of 'grey and black box' manufacturers. Since the 80's, and the computer 'revolution', and the 90's mobile phone addicts, parts suppliers have targeted the easy pathways to make money. Gone are the "good old days" when bits were plentiful. This trend has partly contributed to the diminishing multitude of AR licensees' worldwide.

Trading via the Internet

The modern AR operator can still find both regular and obscure items from around the world via the Internet. Various tries using a search engine looking with keywords like 'tubes'. Sites will pop up with details about plastic and steel pipes for water distribution! Further tries for 'Amateur Radio' + 'tubes' + 'valves' + 'vendors' will narrow the search to worldwide vendors that can be individually searched at leisure. A good example being when the writer was looking for replacement tubes (valves) for a WWII vintage receiver. Australian suppliers were not an option, but many Internet sites in the UK and the USA offered a huge range of new and secondhand tubes (valves) at very affordable prices. Buying these on-line took just a few minutes, and they were delivered, by airmail, within one week into Australia.

Trusting the Internet!

Much hype about Internet Security exists these days, and there's enough to put the wind up most users. Nasty people who grab your passwords, user names, email addresses, and bank account numbers do exist in droves. However, if readers have been following this series, you should be safe enough provided that secure sites are chosen. You can check this by looking at the padlock on the lower right hand side of Microsoft Explorer. If it's open then the site is not secure. If closed then the operators have built-in security and encryption to defend against those 'nasty people'.

Online banking

Today, many Internet users have changed to operating their bank accounts via the Internet. It's cheaper, faster, and immediate.

Money can be paid to vendors online, money transferred between accounts, and bills paid in seconds. Shire rates, electricity, gas, telephone and ISP accounts are all good examples. To do all this by standing in a queue at a branch bank is now unthinkable in today's world. Cheques have become obsolete. But what about doing all this with overseas electronic parts traders?

Plastic cards

For international Internet trading, the most common money exchange is done with a VISA card. Avoid credit and use a savings account that way you'll not have monthly paybacks with the huge interest rates bogging you down. Ordering items online becomes a breeze. Many online traders ask for your credit card number and expiry date. You have to decide if the Internet site is secure before revealing your credit card details. Many readers will not be comfortable with this. Traders ask you to fill in a customer online order form with your name and postal address plus the plastic card details. Not so good if you feel that the transaction might be compromised, or that the trader has not been proved reliable. The final decision has to be yours alone. However, many of the larger traders now use secure agents to conduct transactions for you.

PayPal transactions

Say you are buying a kit project from the USA. The vendor places an order form on the Internet asking for your personal details like name and address and the details of the product - its price in US Dollars and delivery etc. After completing the form and 'clicking' the agree button, another page appears from PayPal (2) confirming your order and asking for your method of payment. Selecting VISA and entering the card number and expiree date PayPal checks the number and confirms that the transaction is valid. PayPal sends you an email message detailing the transaction in your favour and the job is done. PayPal is an international online transaction company with secure encrypted communication between you

and the vendor. PayPal adds a few percent for processing the transaction but the process is well worth while. To see the terms and conditions for using PayPal try looking at ww.paypal.com (2).

The issue here being that the vendor has nominated PayPal as their preferred method of payment. You don't have the choice - the vendor has. You choose how to pay the bill with PayPal who reimburses the vendor in the appropriate currency. Ordering from Australia, via the Internet, from a vendor in the USA is easy because Pay Pal does the currency conversion for you from your VISA card. There are other online companies that do much the same thing. The writer has used this secure method into the USA and it's delightful. The transaction is confirmed with 60 seconds and the vendor confirms your order by email. To see an example of this in action, try: www.smallwonderlabs.com and go through the motions of ordering a kit.

Snail-mail transactions

For readers that feel jittery about online trading, all the research online can still be completed. The order is placed by snail mail giving confidentiality about your card details. The problem still remains on the method of payment. Buying a bank cheque costs around $25:00 Australian which is not an option for small orders - AND using a personal cheque needs the usual 10 days to clear - AND they are no good for overseas transactions anyway. It gets worse if your project is urgent!

One good method is to find a trader (using email) who is prepared to accept your VISA details by post, and register you as a 'preferred customer'.

In this example, the vendor has recorded all your personal details. Any email order is then processed automatically without any online transaction being made. Many companies use this system and it works in favour of Radio Amateurs because their details are readily available online anyway (QRZ.com) and can be verified. To check this idea try: www.americanmorse.com

Registered customers

This is ideal because the vendor knows your details, and your orders are guaranteed to arrive in good order and are insured. Ideal for specialised items.

Other methods commonly used in the UK and USA are via a friendly and helpful RA in those countries. If you have a friend in the USA, and you've done the online research about the product and vendor, ask your friend to order and pay for the product - AND for the product to be posted to you. It's great for small or hard-to-find items, and you can pay your friend in US Dollars via your VISA card directly into his bank account without any bank fees at all. It works nicely when vendors don't have VISA facilities or they are not happy when customers live overseas. This is the "old boy" method but you do need someone (preferably another Radio Amateur) that understands your dilemma, and is prepared to give you a helping hand.

News groups and bulletin boards

These are excellent for finding out critical information such as who, where and how much the products are. But, NEVER reveal any personal details online because many others are reading your bulletins. Keep your bank account and card details secret as best you can. If in any doubt - leave it out and trust nobody unless they trust you first.

On the positive side

Millions of online transactions are conducted on the Internet every day, and things are getting better. Key vendors are now advertising their products and services online through web sites so all the essential information can be readily obtained. Those that don't are missing out. Australia is still well behind in the online race for attracting business - especially when it comes to Amateur Radio products. However, on the positive side, the Internet offers almost everything yet the magazines have diminishing advertising to reduce operating costs. Remember that the Internet offers a world wide shop window whereas the circulation readership in the monthly magazine drastically limits magazine advertising to only the circulation readership.

Items on the Internet

Readers will have to seek out their own special needs. But unusual things like:

- Merlin parts for a WWII Spitfire.
- Spare coils for an HRO Receiver.
- Replacement mudguards for a 1934 Austin 7 Ruby.
- Plugs for a vintage 19 set.
- B2-MkII Transceiver parts.
- Vintage Morse keys and Sounders.
- Spare mains transformer for a Yeasu FT2100Z linear.
- Labgear LG50 for sale.
- Radio gear for reconstructing a WWII Lancaster Bomber.
- Meter for a Heathkit HW100.
- Magic Eye for an R1155 receiver.
- Knobs for an AR88 or...
- FT241 and FT243 crystals

The list is exhaustive, but all these parts can be found at a sensible price thanks to the power of the Internet. Options like B-Pay work in Australia but useless for international trading

Summary

Are you prepared to buy products via the Internet? There is a minor risk if precautions are ignored. VISA is the best option but do some homework first and only use trusted suppliers. Homebrew becomes a possibility when readers have access to the Internet.

Ham Tip No. 31 Open new bank or credit societies account activated from your VISA card. Transfer enough money into the new savings account to cover the cost of the online purchases including postage plus about 10% margin for exchange rate variations. If the new account is compromised, then your primary account is protected.

Ham Shack Computers - Part 32 next month - discusses "Power Back-UPS" for Radio Amateurs. These offer protection from mains surges and "brownouts" and automatically shuts down the computer to avoid data loss.

(1) Ham Shack Computers Web:
www2.tpg.com.au/users/vk6pg
(2) PayPal at:
www.paypal.com

73 de Alan, VK6PG/G3PHG

ar

100% Amateur Radio each month

Beyond our shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

Mainly Morse and BPL

This month all the web sites of overseas Amateur Radio clubs and societies seem to be concentrated on the two major topics: the removal of the Code from the licencing requirements and BPL. For some countries with good government controls, the removal of Code has not been a problem, however others, like here at home, there have been delays. The BPL problem is perhaps the most important and both in the U.S.A. and Europe, as well as here in Australia, it is very much in the spot light.

There has been a lot of publicity in the U.S.A. on the wonderful work Radio Amateurs have done during the September hurricanes when they were able to maintain communications for hospitals and other key facilities. Work well done. I've been following the various QSOs the International Space Station has each week with schools around the world. Some of the questions asked of the Astronauts are quite fascinating. Again all this is done through the capabilities of Amateur Radio.

QSO skeds

Ever wondered how you were ever going to increase your DXCC? Providing you have internet, it may not be as hard as it first appears. Just log on www.hamhq.org and complete the registration. You can then arrange a sked with someone in the area you are seeking. All you have to do is advise when you will be active on-air, frequency, etc. Skeds can be made for CW, SSB and digital modes.

Power line problems

Having read the ACA Discussion paper and their proposal to place the onus squarely on the Radio Amateur to resolve any EMC the Radio Amateur may have inadvertently caused, it was interesting to read in the ARRL Sept. 12 Newsletter of the efforts the FCC are taking to clean up Power Line interference. The FCC appear to be quick to use their government authority to send "please explain" letters to power companies that are lax in cleaning any interference their power lines are causing. I do hope our ACA take notice and act in the same way, as they are our government body responsible for our spectrum. Let's keep it clean.

Licence enforcement

The October 26 News Letter from the ARRL paid a tribute to Riley Hollingsworth who has spent the past 5 years as Special Counsel for Enforcement with the FCC. In the 5 years over 1,000 Amateur Radio cases have crossed his desk. Some have been prosecuted.

He feels the biggest problem we have now stems from conduct-type problems, such as deliberate interference. He says. "Amateurs have got to stick together and co-operate and stay away from in-fighting because we (*the Radio Amateur*) are faced with some very serious external threats. (*Such as BPL*). We have incredible frequencies, power and modes to operate with.". Riley has spent 30 years with the FCC and has been licensed since the age of 13.

(ARRL N/L)

Happy Birthday

Reputed "oldest ham in the US" turns 103: The man believed to be the oldest Amateur Radio operator in the US—Byrl "Tex" Burdick, W5BQU, of El Paso—turned 103 on September 25. First licensed in the fall of 1930, Burdick is on the air every day—most recently on 15 meters (look for him on or about 21.314 MHz), and he enjoys ragchewing. Happy Birthday, Tex!

(ARRL N/L)

Can you help with UN research project?

Kirsten Odegard N9WAC, is working on a United Nations research project on the impact of Information and Communications Technology, or ICT, volunteers on the information society. She is looking particularly at how ICT volunteers work towards the fulfilment of the UN's Millennium Development Goals.

The definition of 'ICT' includes amateur radio and Kirsten writes, "There has yet to be any enquiry into the volunteer work of hams that might be relevant to the UN's Millennium Development Goals. I therefore would like to extend to you the opportunity to assist me in finding ham operators who have served in such capacities and establish contact with them. If you know of hams whose work is relevant to the UN's Millennium Development Goals, please send me their names and contact details as soon as possible. I will then be able to send them a short questionnaire that would aid this effort and eventually aid the efforts of the *World Summit on the Information Society*." If you can help with Kirsten's research project, please contact her by e-mail to n9wac@arrl.net

ar

The *revolutionary* VK4VKD
One Man Tower
Freestanding Self-erecting 10m to 25m

Fully adjustable delta loop rotatable antenna
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Galvanised steel boom to mast clamps
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High tensile 'U' bolts
Safety harnesses for above ground work
Arrays easily taken to ground level for maintenance and wind protection
Easily erected without cranes
(ideal for confined areas or remote repeater sites)
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Australian Enterprise Industrial
Unit 1/34 Tradelink Avenue
Hillcrest QLD 4118
(PO Box 1013 Browns Plains QLD 4118)
http://homepages.ihug.com.au/~aeitower
aeitower@ihug.com.au
Tel: 07 3800 0551 Mob. 0414 254 080
Fax 07 3800 8003

Contest Calendar November 2003 - January 2004

Nov	1/2	Spring VHF+ Field Day	(CW/SSB/FM)	(Oct 03)
Nov	3	High Speed Club Contests	(CW)	
Nov	2/3	Ukrainian Contest	(CW/SSWB/RTTY)	
Nov	9/10	OK/OM DX Contest	(CW)	
Nov	16/17	LZ DX COntest	(CW)	
Nov	29/30	CQ WW DX Contest	(CW)	
Nov	29/30	CQ WW SWL Challenge	(CW)	
Dec	5/7	ARRL 160 Metres Contest	(CW)	
Dec	6/7	MDXA PSK31 DeathMatch	(PSK31)	
Dec	6/7	TARA RTTY Sprint		
Dec	13/14	ARRL 10 Metres Contest	(CW/SSB)	
Dec	20	OK DX RTTY Contest		
Dec	20/21	International Naval Activity	(CW/SSB)	
Dec	26	Ross Hull Memorial VHF Contest	(CW/SSB/FM)	(Nov 03)
(to 11 January, 2004)				
Dec	27/28	Original QRP Contest	(CW)	
Dec	27/28	Stew Perry 160 Metres Distance Challenge	(CW)	
Jan	3/4	ARRL RTTY Roundup		
Jan	10/11	VHF+ Summer Field Day	(CW/SSB/FM)	
Jan	11	End Ross Hull Memorial VHF Contest		
Jan	10/11	Hunting LIONS on the Air	(SSB)	
Jan	17	070 Club PSKFest		
Jan	17/18	Hungarian DX Contest	(CW/SSB)	
Jan	17	LZ Open Contest	(CW)	
Jan	24/25	CQ 160 Metres Contest	(CW)	
Jan	24/25	REF Contest	(CW)	

Special Note

Some of you may be using loggers that do not have a Cabrillo conversion module built in. If so, you may be interested to know that John VK5EMI has written a simple conversion program to do this job — a must-have if you are interested in entering DX contests. Please contact John at QTHR.

Results Pacific 160 Metres Contest 2003

This year saw some good conditions, participation and scores. I certainly thank all who took part, especially under the blanket of confusion caused by a change in the rules.

Suggestions were made that changes would enhance the contest, but I have to admit that I did not consider the ramifications of such changes at the time. For this I apologize most sincerely, but again say thanks for persevering.

Basically I decided to sort the logs as though there were two contests, a full 16 hours and the revised 3 hours, as shown by the times in the logs. The results below reflect this grouping.

73, Ian Godsil VK3JS
Email: vk3js@vkham.com

Three Hours Single Operator CW

1. ZL1/W3SE	Wes	295 points
2. VK8AV	Alan	72
3. VK5XE	Ian	36

Three Hours Single Operator SSB

1. ZL2CC	Mike	287 points

Three Hours Single Operator Mixed Modes

1. ZL2RX	Roger	1008 points
2. ZL3NB	Bill	432
3. ZL2AJB	C. Hodge	270
4. ZL4IQ	Don	190

Three Hours Multi-Operator Mixed Modes

1. ZL4AA	(ZL4KX, ZL4KS, ZL3TLU)	742 points
2. VK4RV/ VK4CY	Adrian/ Jon	86

Full Single Operator CW

1. VK3ZL	Bob	2880 points
2. ZL1JG	Ron	1079
3. ZL2BR	Frank	1030
4. VK3ET	John	310
5. W7LR	Bob	80
6. K6SE	Earl	5

Full Single Operator SSB

1. VK3IO	Ron	650 points
2. VK3KTO	Mike	160
3. VK5EMI	John	20

Full Single Operator Mixed Modes

1. VK5MX	Mervyn	408 points

Full Multi-Operator SSB

1. VK3BF/ VK3CKD	Alan Victor	441 points

Full Multi-Operator Mixed Modes

1. VK5NJ/ VK3JTM	John Tim	573 points
2. VK3APC (VK3 OR, YE, TSM, JED, KBD)		272

Check Logs ZL2DW VK3JS thank you.

Statistics	CW	SSB	MIXED	CHECK	TOTAL
	9	5	7	2	23

Comment: CW has not been looked on favourably by VKs for some years, but it is interesting to note the increased number of logs in both the CW and Mixed Modes sections of the above contest. This trend is very much in line with what is happening overseas and I suggest is likely to continue!

Results Oceania DX Contest 2002

Congratulations to all the winners in the 2002 Oceania DX Contest. Activity has again increased in 2002 compared to 2001; however there was a decrease in SSB logs of some 3 % and an increase in CW logs by 22%. Whilst the conditions seemed to be poorer than the previous year, as may well be expected as we head down the declining slope of cycle 23, scores were quite high with some strong activity and competition from Europe.

The complete results for the contest are contained in the attached tables. For the first time we have included the top ten score for each continent and also a top ten box for non-Oceania participants. A summary of the best scores for each Mode, Band and Continent is detailed below.

The rural station of VK4EMM took out the phone contest with a sterling effort. Plenty of skill as well as dedication is required to rack up a score like John's. As well as the top scores we were graced with a little more activity from other than the usual VKs and ZLs with activity from 4W, 3D2, YB, DU, 9M6, KH2 and others.

As might be expected most of the Non-Oceania top scores were from Asia. With propagation declining the North/South path is likely to yield the best overall conditions. Congratulations to PA3EPN a keen contester, present in many of the big ones, who managed to achieve a top score from Europe on the very tough 40m band.

2002 SSB Continent Leaders

Contest Category	ASIA	EUROPE	NORTH AMERICA	OCEANIA	SOUTH AMERICA	NON-OCEANIA
SWL	UA0-107-181	UA3-155-75				UA0-107-181
Single-Op All	JH4UYB	ER4DX	K3ZO	VK4EMM	PY2NA	JH4UYB
Single-Op 80m	JG1IGX			ZL2AMA		JG1IGX
Single-Op 40m		PA3EPN	K3TW	VK1MJ		PA3EPN
Single-Op 20m	JA7DOT	DL7CX		VK2APK	LU9JX	JA7DOT
Single-Op 15m	JR9NVB	UA3DEE		VK8DK	L44DX	JR9NVB
Single-Op 10m	JA6EFT	UA6ADC	NA2X	VK4NEF		JA6EFT
Multi-One	RW9C	RW2F		VK8DA	R1ANC	RW9C
Multi-Multi				ZL6QH		

2002 CW Continent Leaders

Contest Category	ASIA	EUROPE	NORTH AMERICA	OCEANIA	SOUTH AMERICA	NON-OCEANIA
SWL	UA0-107-181	YZ1KVA-SWL				
Single-Op All	UA0LCZ	UT7QF	N6RO	KH6ND	LU1EWL	N6RO
Single-Op 80m				VK3TZ		
Single-Op 40m	JA3HBF	OK2BVG	K3TW			JA3HBF
Single-Op 20m	JA7DOT	SP5CJQ	W7KPL	VK2APK		SP5CJQ
Single-Op 15m	JA1BBA	DJ5GG	K9ALP	VK2KM	PY7OJ	JA1BBA
Single-Op 10m	JA1PS	UA6ADC	W1END	VK4TT		JA1PS
Multi-One	RW9C	UT7L				UT7L
Multi-Multi				ZL6QH	R1ANC	R1ANC

KH6ND took out the top CW score this year, just edging out John, VK4EMM who nearly took out the double! Only the points awarded for band contacts really separated the two fine CW ops, with John having more mults and more QSOs but less points. The competition in the CW contest was hot! With around 287 logs submitted, and over half from Europe, CW is certainly alive and well.

In the CW section again, the Non-Oceania scores were mainly by Asian stations with the JAs well in front on 10 and 15m. Special mention to Dick, N6RO another one of those die-hard contesters who managed to top out the rest with the top all-band Non-Oceania score. A tough ask with not too many beams pointed his way.

Awards and Plaque winners

The Awards for the 2002 contest are unchanged and the worthy recipients are listed in the following table. John, VK4EMM takes out both the SSB and CW trophies with some very high scores. It would however be remiss not to mention that the top CW score from Oceania was by KH6ND, and the crew at ZL6QH once again produced some amazing results as the only Multi-Multi from Oceania. Is there a gang out there in VK who are willing to give those Kiwis a "spot of competition"?

2002 Trophy and plaque winners

Award	Description	Recipient
ZL2TT Trophy	Top entrant from Oceania in Single Operator All Band Phone category - in memory of Ron Wills ZL2TT, sponsored by ZL2GI, ZL2ZL, Wellington Amateur Radio Club and NZART	VK4EMM
VK5/VK8 SOAB Phone Plaque	Top entrant from VK5 or VK8 Call areas in Single Operator All Band Phone category, sponsored by WIA South Australian Division	VK5GN
VK7 SOAB Phone Plaque	Top entrant from VK7 Call area in Single Operator All Band Phone category, sponsored by WIA Tasmania Division	Not Awarded
VK2QL Trophy	Top entrant from Australia in Single Operator All Band CW category - in memory of Frank Hine VK2QL, sponsored by WIA Federal.	VK4EMM
VK5/VK8 SOAB CW Plaque	Top entrant from VK5 or VK8 Call areas in Single Operator All Band CW category, sponsored by WIA South Australian Division	VK5GN
N6RO Plaque	Top entrant from North America in Single Operator All Band Phone category, sponsored by N6RO	K3ZO
ASIA SOAB Phone Plaque	Top entrant from Asia in Single Operator All Band Phone category, sponsored by the Eastern and Mountain Districts Radio Club, VK3.	JH4UYB
ASIA SOAB CW Plaque	Top entrant from Asia in Single Operator All Band CW category, sponsored by the Eastern and Mountain Districts Radio Club, VK3.	UA0LCZ

Participation

The committee is pleased, albeit a little surprised to see that the CW contest has moved ahead in participation rate more than the SSB contest. The number of log entries in the SSB Contest has declined a few percent, but the CW contest shows a growth of 22%, with the overall participation for the combined contests up 9.3%. Hopefully the decline in the Sunspot activity will not deter compet-itors from submitting entries in 2003.

SSB results

Single Operator

OCEANIA

Australia

Call	Band	Power	Score	QSOs	Points	Mults
VK4EMM	all	high	2,813,776	1461	3626	776
VK5GN	all	high	2,551,020	1599	3111	820
VK2FHN	all	high	985,566	990	1779	554
VK2CZ	all	high	711,018	666	1701	418
VK4UC	all	high	471,472	583	1264	373
VK4DX	all	low	419,482	677	1162	361
VK8DK	15M	low	393,790	743	1486	265
VK3TZ	all	high	267,220	431	862	310
VK6NU	all	low	263,937	408	907	291
VK4NEF	10M	low	205,590	385	1155	178
VK2XT	15M	high	198,268	511	1022	194
VK2APK	20M	high	101,680	410	410	248
VK2VZQ	15M	low	96,570	333	666	145
VK4ADC	20M	high	93,252	409	409	228
VK4BAY	all	high	84,108	221	516	163
VK3VP	all	low	67,932	164	999	68
VK3BGH	all	low	54,932	188	443	124
VK2AYD	20M	low	41,912	248	248	169
VK5KCX	all	high	8,370	68	155	54
VK1MJ	40M	high	5,950	35	175	34
VKK3PRA	15M	high	5,166	63	126	41
VK4FJ	all	low	3,780	45	90	42

East Timor

4W6MM	all	high	2,407,860	1607	3510	686

Guam

NH2PW	20M	high	418	22	22	19

Indonesia

YB2OBL	15M	low	158,240	368	736	215
YC7SKM	15M	high	116,424	308	616	189
YC4FIJ	15M	high	20,470	115	230	89
YB2MTA	15M	low	9,052	73	146	62
YC2ECG	15M	high	3,500	50	100	35

New Zealand

ZL1TM	all	low	1,233,674	1042	2063	598
ZL1ALZ	all	high	351,880	683	926	380
ZL3GA	all	low	117,586	326	518	227
ZL4AS	all	high	103,246	290	494	209
ZL1ANH	all	low	58,032	246	372	156
ZL1BYZ	all	high	38,041	152	349	109
ZL2CD	all	high	21,894	125	267	82
ZL2LF	all	high	20,394	159	198	103
ZL1IM	all	high	7,239	70	127	57
ZL3DW	all	high	1,728	40	48	36
ZL2AMA	80M	high	1,680	24	240	7

Philippines

4D70SAN	20M	low	1,218	42	42	29

ASIA

Asiatic Russia

UA0LCZ	all	high	5,371	70	131	41
RN9HM	all	high	2,916	54	108	27
UA0FBS	all	high	2,700	50	100	27
UA9LP	all	high	2,697	49	93	29
RA9AU	all	low	1,220	29	61	20
UA9HR	all	high	480	19	40	12
UA0IV	all	low	468	29	36	13
RZ9ZR	all	high	320	13	32	10
UA9LGL	15M	low	128	8	16	8
RZ9IB	all	low	84	7	14	6
RA9ST	15M	high	60	6	12	5
RA0CL	20M	high	36	6	6	6
UA9XF	all	low	32	4	8	4
UA9QFF	10M	low	3	1	3	1

Hong Kong

VR2BG	all	high	1,040	26	65	16

India

VU3DJQ	20M	low	35	7	7	5

Japan

JH4UYB	all	high	44,772	208	533	84
JK1OLT	all	high	34,602	175	438	79
JA3AOP	all	high	12,420	96	230	54
JH1KLN	all	high	5,400	70	135	40
JA7ODY	all	high	5,282	63	139	38
JA1BBA	all	low	5,092	66	134	38
JM1XCW	all	high	4,896	70	144	34
JM1GHT	all	low	3,380	49	130	26
JA0VHI	all	high	2,688	37	112	24
JA2GHP	all	low	2,304	40	96	24
JJ3OOZ	all	high	2,112	43	88	24
JR9NVB	15M	high	2,024	44	88	23
JA1HFY	all	high	1,872	38	78	24
JE1PJR	all	high	1,480	30	74	20
JA1GYO	all	low	1,386	37	66	21
JA6QDU	all	high	1,292	30	76	17
JA1IZ	all	high	1,254	32	66	19
JA1KK	all	high	1,240	31	62	20
JG2REJ	all	high	846	22	47	18
JA4JJI	15M	high	840	28	56	15
JA1AAT	all	high	795	21	53	15
JA4BAA	all	high	792	23	44	18
JL7AIA	all	high	768	20	48	16
JJ2PUG	15M	high	700	25	50	14
JA7DOT	20M	high	688	43	43	16
JA4AQR	all	high	666	26	37	18
JA6EFT	10M	high	627	19	57	11
JR7LVK	15M	high	600	20	40	15
JR1MRG	all	high	533	18	41	13
7K2PBB	10M	high	324	12	36	9
7N2UQC	10M	low	315	15	45	7
JF3EBO	all	high	264	15	24	11
JA9SCB	15M	high	240	12	24	10
JA1XPU	15M	low	234	13	26	9
JR2TRC	10M	high	231	11	33	7
JQ2EAN	15M	high	216	12	24	9
JM2RUV	15M	high	216	12	24	9
JQ1AHZ/2	15M	high	192	12	24	8
JM7EPG	20M	high	190	19	19	10
JL3RDC	all	low	182	10	26	7
JG1IGX	80M	high	160	4	40	4
JG1GCO	all	high	133	8	19	7
JE2SOY	10M	high	90	6	18	5
JR3KAH	15M	high	72	6	12	6
JK1BII	15M	low	60	6	12	5
JH5OXF	15M	high	32	4	8	4
JG4OHX	20M	high	24	6	6	4
JA2MVW	10M	high	24	4	12	2

Kazakhstan

UN5PR	all	high	3,696	57	112	33
UN9GC	all	high	784	25	49	16
UN9LN	15M	high	270	15	30	9

Kyrgyzia

EX2T	all	high	260	15	26	10

Mongolia

JT1CO	all	high	70	6	14	5

Singapore

9V1UV	all	high	5,662	65	149	38

EUROPE

Austria

OE1TKW	20M	high	20	5	5	4

Belarus

EW6AF	all	high	640	27	40	16
EW2AA	all	high	319	16	29	11
EW6DX	20M	low	112	14	14	8

Belgium

ON4CAS	all	high	392	19	28	14
ON4XG	all	high	230	16	23	10

Bulgaria

LZ1UO	all	high	1,197	39	57	21
LZ1LZ	all	high	240	16	24	10
LZ4UU	20M	high	66	11	11	6
LZ1DM	20M	high	6	3	3	2

Czech Republic

OK1DVK	20M	high	66	11	11	6
OK2EQ	all	high	60	8	10	6

England

G3VAO	all	low	1,392	40	58	24
G3JKY	20M	high	9	3	3	3

Estonia

ES1QD	all	high	1,408	42	64	22

European Italy

IZ4DJZ	all	low	702	27	39	18
I2WIJ	20M	low	112	14	14	8
IK5WGK	20M	high	24	6	6	4

European Russia

RW1ZA	all	high	5,680	78	142	40
RX6LG	all	high	2,436	49	84	29
RK3SWB	all	high	2,080	44	80	26
RA6AFB	all	high	1,496	26	68	22
RX3AAJ	all	high	1,386	40	63	22
RN3DN	all	low	1,083	39	57	19
RN1AO	all	high	690	28	46	15
UA3DEE	15M	high	468	18	36	13
UA4LCH	20M	high	378	27	27	14
UA6HON	all	low	300	19	25	12
RZ3DH	all	high	154	12	22	7
RZ3BY	all	high	104	9	13	8
UA6ADC	10M	low	72	6	18	4
UA1WBV	all	low	28	5	7	4
RX3AEX	all	low	9	3	3	3
UA4AVN	20M	high	4	2	2	2

Fed. Rep. of Germany

DM5JBN	all	low	714	23	42	17
DL7CX	20M	high	456	38	38	12
DL1TC	all	high	288	19	24	12
DL1DQY	20M	high	126	14	14	9
DH5WB	15M	low	60	6	12	5
DL3ZAI	all	high	18	5	6	3

Finland

OH6IU	all	high	969	35	51	19
OH2MO	15M	high	408	17	34	12
OH2HMB	20M	low	1	1	1	1

Hungary

HG8W	15M	high	64	8	16	4

Lithuania

LY1DR	all	high	2,494	58	86	29
LY2OX	all	high	1,872	45	72	26

Moldova

ER4DX	all	high	14,960	119	272	55
ER1QQ	all	high	3,906	80	126	31

Netherlands

PA3EPN	40M	high	1,260	28	140	9
PA0MIR	15M	low	220	11	22	10
PA0VST	all	low	28	4	7	4

Norway

LA1VKA	15M	high	176	11	22	8
LA6PIA	all	high	144	13	18	8

Poland

SP6IHE	all	low	2,550	47	85	30
SP6IEQ	all	low	774	30	43	18
SP6LUV	all	low	570	20	38	15
SP6DVP	all	high	546	26	39	14
SP9TCC	all	low	480	23	32	15
SP9ADV	all	low	96	8	16	6
SP3DIG	20M	high	88	11	11	8
SP4AAZ	20M	high	10	5	5	2
SP1MVG	40M	high	5	1	5	1

Romania

YO5OEF	all	high	448	21	32	14
YO3FLQ	20M	high	32	8	8	4
YO6AJI	20M	high	15	5	5	3

Slovakia

OM4JD	all	high	960	35	48	20
OM4DN	15M	low	60	6	12	5
OM7YC	15M	low	32	4	8	4

Spain

EA3FHP	20M	high	28	7	7	4

Sweden

7S2E	all	high	4,681	84	151	31
SM5CSS	all	high	1,850	45	74	25
SM3TLG	15M	high	280	14	28	10
SM7AIL	15M	high	216	12	24	9
SM6FUD	15M	high	70	7	14	5

Ukraine

UR6QA	all	high	10,396	117	226	46
UR3IFD	all	high	7,098	96	169	42
UW5U	20M	low	72	12	12	6
UX0IB	15M	high	64	8	16	4
UU2JA	15M	low	2	1	2	1

Call	Band	Power	Score	QSOs	Points	Mults
Yugoslavia						
YU1RE	all	high	1,725	42	69	25
YU7LS	15M	high	280	14	28	10
YU7KM	20M	high	42	7	7	6
NORTH AMERICA						
Canada						
VE7AVV	all	low	612	21	51	12
VE1ZJ	all	high	470	14	47	10
VE3DZ	all	low	16	3	8	2
United States						
K3ZO	all	high	5,346	76	162	33
W6RLL	all	high	2,075	35	83	25
KU1CW	all	high	1,596	35	76	21
K4JRB	all	high	1,584	39	66	24
NY4T	all	low	1,155	31	55	21
NA2X	10M	high	96	8	24	4
K3TW	40M	high	75	5	25	3
WA5SWN	10M	high	12	4	12	1

Call	Band	Power	Score	QSOs	Points	Mults
SOUTH AMERICA						
Argentina						
L44DX	15M	low	320	16	32	10
LU9JX	20M	high	126	14	14	9
Brazil						
PY2NA	all	low	35	6	7	5
Multi-operator, One Transmitter						
VK8DA	all	high	1,215,384	974	2276	534
VK2QF	all	high	324,120	509	1095	296
RW9C	all	high	10,580	86	230	46
RK0AXX	all	high	1,870	23	110	17
RW2F	all	high	986	36	58	17
RZ4AYT	all	high	180	11	20	9
R1ANC	all	high	160	16	20	8
RK3RWL	all	high	72	6	12	6
UR4PWC	all	high	12	6	6	2
Multi-operator, Multi-Transmitter						
ZL6QH	all	high	3,510,936	1687	4092	858

Call	Band	Power	Score	QSOs	Points	Mults
Short Wave Listeners						
UA0-107-181	all	N/a	5,376	70	128	42
UA3-155-75	all	N/a	938	16	67	14
JA5-3278	all	N/a	918	22	51	18
UA3-170-847	all	N/a	338	21	26	13
ONL383	all	N/a	72	6	12	6
JA2-9329	all	N/a	25	5	5	5
UU-J-1	all	N/a	8	3	4	2

Check Logs

DL2SDQ RN6FK DL1DTC SP1EOM SP6CES YO5CRQ

Multi-Op Station Operators

UR4PWC	UR4PWC
RK3RWL	RN3RC, RU3RQ
R1ANC	RW1AI, UA1PAC
RZ4AYT	UA4AVN, RA4A-356, RA4AI
RW2F	UA2FB, UA2FF
RK0AXX	CONTEST TEAM SCDXC
RW9C	RW9CF, RA9DK
VK2QF	VK2ANZ
VK8DA	VK8NSB, VK8AN, VK8DP, VK8KG, VK8XC, VK8HRE, VK8PT, VK8NAI, VK8PC, SWL = RON & PETER
ZL6QH	ZL2AMI, ZL2AOV, ZL1AXG, ZL2BBJ, ZL2CA, ZL2UDF, ZL2UO, ZL2DZ, ZL1AZE

Europe Top 10

ER4DX	all	high	14,960
UR6QA	all	high	10,396
UR3IFD	all	high	7,098
RW1ZA	all	high	5,680
7S2E	all	high	4,681
ER1QQ	all	high	3,906
SP6IHE	all	low	2,550
LY1DR	all	high	2,494
RX6LG	all	high	2,436
RK3SWB	all	high	2,080

North America Top 10

K3ZO	all	high	5,346
W6RLL	all	high	2,075
KU1CW	all	high	1,596
K4JRB	all	high	1,584
NY4T	all	low	1,155
VE7AVV	all	low	612
VE1ZJ	all	high	470
NA2X	10M	high	96
K3TW	40M	high	75
VE3DZ	all	low	16

Asia Top 10

JH4UYB	all	high	44,772
JK1OLT	all	high	34,602
JA3AOP	all	high	12,420
9V1UV	all	high	5,662
JH1KLN	all	high	5,400
UA0LCZ	all	high	5,371
JA7ODY	all	high	5,282
JA1BBA	all	low	5,092
JM1XCW	all	high	4,896
UN5PR	all	high	3,696

South America Top 10

L44DX	15M	low	320
LU9JX	20M	high	126
PY2NA	all	low	35

Africa Top 10

No Entrants

Oceania Top 10

VK4EMM	all	high	2,813,776
VK5GN	all	high	2,551,020
4W6MM	all	high	2,407,860
ZL1TM	all	low	1,233,674
VK2FHN	all	high	985,566
VK2CZ	all	high	711,018
VK4UC	all	high	471,472
VK4DX	all	low	419,482
VK8DK	15M	low	393,790
ZL1ALZ	all	high	351,880

Non-Oceania Top 10

JH4UYB	all	high	44,772
JK1OLT	all	high	34,602
ER4DX	all	high	14,960
JA3AOP	all	high	12,420
UR6QA	all	high	10,396
UR3IFD	all	high	7,098
RW1ZA	all	high	5,680
9V1UV	all	high	5,662
JH1KLN	all	high	5,400
UA0LCZ	all	high	5,371

CW results

Single Operator

OCEANIA

Australia

Call	Band	Power	Score	QSOs	Points	Mults
VK4EMM	all	high	4,205,320	1740	4571	920
VK2AYD	all	low	2,168,947	1228	2959	733
VK4DX	all	low	1,469,320	1197	2180	674
VK5GN	all	high	1,250,044	839	2372	527
VK4UC	all	low	416,480	432	1370	304
VK4TT	10M	low	413,991	513	1539	269
VK2QF	all	high	352,625	494	1085	325
VK2KM	15M	high	331,676	566	1132	293
VK2APK	20M	high	273,504	777	777	352
VK8AV	all	low	264,702	436	843	314
VK3JS	all	QRP	171,550	237	1175	146
VK4XY	all	low	159,222	291	714	223
VK2PS	all	high	79,304	236	431	184
VK3TZ	80M	high	10,800	36	360	30
East Malaysia						
9M6A	all	high	99,414	240	526	189
East Timor						
4W6MM	all	high	147,852	310	666	222
Fiji						
3D2/W7DRA	all	low	582,015	532	1687	345
Hawaii						
KH6ND	all	high	4,449,375	1735	5085	875

Indonesia

YB0ECT	all	low	379,008	652	1008	376
YD2DQV	15M	low	15,708	102	204	77
New Zealand						
ZL1GO	all	high	2,431,968	1340	3234	752
ZL2BR	all	low	2,127,066	1212	2942	723
ZL2AZ	all	high	1,134,980	743	2345	484
ZL2CD	all	high	617,391	553	1629	379
ZL1AIH	all	high	513,279	567	1599	321
ZL2AGY	all	high	324,352	375	1267	256
ZL2LF	all	high	145,754	256	718	203
ZL3GA	all	low	9,614	69	209	46
ZL1ALZ	all	low	4,900	61	98	50
ZL3CED	all	high	3,404	45	92	37
ZL/G4EDG20M	low		1,320	40	40	33
Philippines						
DU3NXE	all	high	221,147	423	787	281

ASIA

Asiatic Russia

UA0LCZ	all	high	11,220	78	220	51
RA9MA	all	high	6,794	67	158	43
UA9JKA	all	high	5,080	59	127	40
UA0SAD	all	low	4,000	47	125	32
UA0ANW	all	low	1,102	23	58	19
RA0AY	all	high	1,026	23	54	19
RA0CL	all	high	540	15	36	15
RW0LIA	15M	low	456	19	38	12
UA9XF	all	low	170	11	17	10
UA9FGJ	20M	low	42	7	7	6
UA0SBQ	all	high	12	2	6	2
RA9ST	20M	high	9	3	3	3
UA9QFF	15M	low	2	1	2	1
RW9QA	15M	low	2	1	2	1
India						
VU2UR	all	low	1,794	34	69	26
Japan						
JI3BFC	all	high	7,098	62	169	42
JA7ARW	all	low	2,106	39	81	26
JA3YPL	all	low	1,976	35	76	26
JA4AQR	all	high	1,968	37	82	24
JE1REU	all	low	1,869	30	89	21
JA1PS	10M	high	1,824	32	96	19
JA1HFY	all	high	1,575	28	63	25
JR1NKN	all	QRP	850	21	50	17
7J1ABD	all	high	816	19	48	17
JA3HBF	40M	low	770	14	70	11
JA1BBA	15M	low	750	25	50	15
JE2SOY	10M	low	663	17	51	13
JA4ETH	10M	low	480	16	48	10
JA2KCY	all	low	374	15	34	11
JH5OXF	all	low	360	14	30	12
7K2PBB	10M	high	297	11	33	9
JA4CES	10M	high	264	11	33	8
JA1AAT	10M	high	264	11	33	8
JG3NKP/1	10M	high	252	12	36	7
JI2KVW	all	high	216	9	24	9
JR2TRC	10M	high	180	10	30	6
JA7DOT	20M	high	168	14	14	12
JF7GDF	15M	high	126	9	18	7
JO7BBS	10M	high	84	7	21	4

Call	Band	Power	Score	QSOs	Points	Mults
JH2OMM	20M	high	72	9	9	8
JE1KDM	40M	high	60	4	20	3
JH1NXU	all	high	52	5	13	4
JN7OJA	10M	high	45	5	15	3
JQ1AHZ/2	15M	high	32	4	8	4
JO1WIZ	15M	high	32	4	8	4
JK1LUY	20M	high	20	5	5	4
JH7IMX	20M	low	9	3	3	3
JH9WHX	40M	high	5	1	5	1

Kazakhstan

UN5J	all	high	3,432	48	104	33
UN6P	all	high	2,184	31	84	26
UN9LN	all	high	217	7	31	7
UN7EX	all	high	112	10	14	8

Kyrgyzia

EX2X	15M	high	280	14	28	10
EX2A	all	high	32	4	8	4

South Korea

HL5UOG	all	high	6,280	61	157	40

EUROPE

Austria

OE3ZK	all	high	1,932	43	69	28

Belarus

EW6MM	all	high	1,944	34	72	27
EW6AF	all	high	1,232	25	56	22
EW2AA	all	high	270	13	27	10
EU1MM	15M	low	154	11	22	7

Belgium

ON4XG	all	high	1,140	32	57	20

Bosnia-Herzegovina

T95A	15M	low	60	6	12	5

Bulgaria

LZ1LZ	all	high	1,725	47	69	25
LZ1XL	10M	high	408	17	51	8
LZ2L	15M	high	180	10	20	9
LZ4UU	20M	high	150	15	15	10
LZ1IA	20M	high	135	15	15	9
LZ3DP	10M	high	126	7	21	6
LZ2UZ	all	low	48	8	8	6

Croatia

9A9AU	all	high	104	11	13	8

Czech Republic

OK2EQ	all	high	1,968	34	82	24
OK1OX	all	high	1,782	34	66	27
OK2BCJ	all	high	1,495	36	65	23
OK1DVK	all	high	1,100	31	50	22
OK2BVG	40M	high	390	13	65	6
OK1AOU	all	high	300	13	25	12
OK2BNC	all	high	216	15	24	9
OK1ANN	15M	high	98	7	14	7
OK1DSU	all	high	36	5	12	3

Denmark

OZ5DX	all	high	5,250	65	150	35
OZ7BQ	all	high	920	24	46	20

England

G3GLL	all	high	2,688	47	96	28
G3UFY	all	high	1,875	37	75	25
G5MY	all	high	180	11	20	9
G3JKY	all	high	91	9	13	7

Estonia

ES2JL	20M	high	126	14	14	9

European Russia

RN6BN	all	high	6,437	67	157	41
RA6LW	all	low	2,880	48	90	32
RN1AO	all	high	1,890	36	70	27
RA4HW	all	low	629	22	37	17
UA3DEE	15M	high	432	18	36	12
UA6ADC	10M	low	420	14	42	10
UA6HON	all	low	312	18	26	12
RZ4AG	all	low	299	15	23	13
RX3DTN	all	high	297	11	27	11
UA4QK	all	high	204	12	17	12
RA3WDK	40M	low	150	6	30	5
UA3AVR	15M	high	140	10	20	7
RA4AI	all	low	12	3	4	3
RV3DAK	20M	low	9	3	3	3
RW3VZ	20M	high	9	3	3	3
RZ4AA	all	high	6	2	3	2
UA3RF	40M	high	0	0	0	0

Fed. Rep. of Germany

DL6KVA	all	high	2,573	38	83	31
DK3KD	all	high	1,958	34	89	22
DL8QS	all	high	1,869	36	89	21
DK3GI	all	low	1,725	31	75	23
DL6YK	all	high	1,672	37	76	22
DL2TG	all	high	1,140	25	57	20
DL7AXM	all	high	780	24	39	20
DJ5GG	15M	low	494	19	38	13
DL3NSM	20M	high	338	26	26	13
DL3ZAI	all	high	198	12	18	11
DL1DQY	20M	high	130	13	13	10
DL8UAT	20M	low	56	8	8	7
DK3RA	40M	low	45	3	15	3

Finland

OH1BOI	all	high	128	9	16	8
OH2HMB	all	low	60	6	10	6

France

F6IRF	all	low	2,025	40	75	27

Hungary

HA8VK	all	high	6,825	66	175	39
HG8W	all	high	378	17	27	14

Kaliningradsk

UA2CZ	all	high	190	11	19	10

Latvia

YL2LY	all	high	5,846	63	158	37

Lithuania

LY1DR	all	high	4,320	55	120	36
LY2OX	all	high	1,344	30	64	21
LY2BNL	20M	low	25	5	5	5

Netherlands

PA0MIR	all	low	680	26	40	17
PA3BFH	all	low	629	24	37	17
PA3FDO	all	high	88	6	22	4

Northern Ireland

GI4KSH	all	high	28	4	7	4

Poland

SP5ATO	all	low	2,880	49	96	30
SP6BAA	all	high	1,134	25	54	21
SP5GH	all	high	1,026	25	54	19
SP6IHE	all	low	527	18	31	17
SP7BCA	all	high	495	21	33	15
SP9QJ	all	high	406	19	29	14
SP5CJQ	20M	high	345	23	23	15
SP9BRP	all	high	312	14	26	12
SP8BAB	20M	low	253	23	23	11
SQ4NR	all	low	144	8	18	8
SQ9FMU	15M	low	128	8	16	8
SP4AVG	15M	high	84	7	14	6
SP3AOT	20M	high	80	10	10	8
SP3BGD	20M	low	70	10	10	7
SP9EMI	all	low	24	3	8	3
SP5AKG	15M	high	18	3	6	3
SP4AAZ	20M	high	1	1	1	1
SP9ADV	20M	low	1	1	1	1

Romania

YO6BHN	all	low	2,132	36	82	26
YO8WW	all	high	54	8	9	6
YO8BGD	40M	high	20	2	10	2
YO2BEH	15M	high	18	3	6	3

Slovakia

OM0WR	all	high	4,725	46	135	35
OM8ON	all	low	2,158	33	83	26
OM4JD	all	high	2,050	42	82	25
OM4DN	all	low	1,232	28	56	22
OM7RC	all	low	663	22	39	17
OM7YC	15M	low	280	14	28	10
OM7PY	20M	QRP	36	6	6	6
OM7AT	20M	high	25	5	5	5

Slovenia

S53AU	all	low	462	21	33	14
S59ZZ	15M	high	98	7	14	7
S58MU	20M	high	63	9	9	7

Spain

EA7GSU	15M	high	330	15	30	11
EA2AHZ	all	high	286	14	22	13
EA7CA	20M	low	4	2	2	2

Sweden

7S2E	all	high	4,032	45	126	32
SM6CRM	all	high	1,323	32	63	21
8S0W	all	high	765	21	45	17
SM3TLG	15M	high	240	15	30	8
SK0TM	all	high	160	10	20	8
SM0KV	15M	high	50	5	10	5
SM5CSS	15M	low	2	1	2	1

Switzerland

HB9IK	all	high	2,160	39	80	27
HB9CZF	all	high	900	28	50	18

Ukraine

UT7QF	all	high	15,872	105	256	62
UR3IFD	all	low	4,588	58	124	37
UR8LA	all	high	3,672	48	108	34
UT2UB	all	high	2,820	40	94	30
UW5U	all	low	2,635	43	85	31
UU5JIB	all	high	1,392	32	58	24
US9QA	all	high	1,260	33	63	20
UY0ZG	all	high	1,045	26	55	19
UX1IL	all	low	520	14	40	13
UT5UIA	all	high	344	11	43	8
UX0IB	15M	high	198	11	22	9
US3QW	15M	low	50	5	10	5
UU2JA	20M	high	48	8	8	6

Yugoslavia

YU7LS	15M	high	456	19	38	12
4N1JA	all	low	336	17	28	12
YU7KM	20M	high	220	20	20	11
YT1VM	15M	high	198	11	22	9
YU1RE	40M	high	140	7	35	4

NORTH AMERICA

Canada

VE3DZ	all	low	9,024	73	192	47
VE1ZJ	all	high	7,942	57	209	38
VE4IM	all	high	6,734	57	182	37
VE7ASK	all	low	3,475	37	139	25
VA3IX	all	high	196	8	28	7

United States

N6RO	all	high	32,472	133	451	72
KU1CW	all	high	12,740	91	245	52
K3ZO	all	high	12,005	88	245	49
W6RLL	all	high	5,530	53	158	35
N6ZZ	all	high	4,726	54	139	34
K3NK	all	low	4,046	57	119	34
W3BP	all	high	3,266	38	142	23
W2OO	all	high	2,825	37	113	25
N4PSE	all	low	1,050	26	70	15
K9ALP	15M	high	432	18	36	12
W1END	10M	low	273	13	39	7
KC8LTL	10M	QRP	264	11	33	8
K0UK	all	low	230	10	23	10
W3CP	15M	high	224	14	28	8
K0COP/4	all	high	207	11	23	9
K3TW	40M	high	200	8	40	5
W7KPL	20M	high	20	5	5	4
W1HDO	20M	high	1	1	1	1

SOUTH AMERICA

Argentina

LU1EWL	all	high	3,159	51	117	27

Brazil

PY2NA	all	low	40	5	8	5
PY7OJ	15M	low	24	4	8	3
PY4FQ	all	low	20	4	5	4

Multi-operator, One Transmitter

UT7L	all	high	3,638	49	107	34
OM3KZA	all	high	2,378	43	82	29
RW9C	all	high	1,155	28	55	21
HA1CW	all	high	680	24	40	17
RK3RWL	all	high	98	7	14	7
SP9KRT	all	low	5	1	5	1

Multi-Operator, Multi-Transmitter

ZL6QH	all	high	7,106,666	2315	6223	1142
R1ANC	all	low	1,472	29	64	23

Shortwave Listener

UA0-107-181	all	N/a	9,840	79	205	48
YZ1KVA-SWL	all	N/a	1,197	31	57	21
UA3-155	all	N/a	738	26	41	18
UA1-173-1	all	N/a	624	24	39	16
UA3-155-75	all	N/a	528	19	33	16
JA5-3278	all	N/a	481	14	137	13
UA3-170-847	all	N/a	160	11	16	10
OK2-9329	all	N/a	77	8	11	7

Check Logs

DF3OL DF6LQ DL1DTC DL2HWI DL2SDQ DL7VMM K9GY LA1YE
OH7NRW OK1DEC PA0TON PA5TT PY7GK RA9AC SP2AVE SP9SOU
UA4NF ZL2ALJ

Multi-Op Station Operators

UT7L	UR4LTX, UX0LL
OM3KZA	OM3CUG, OM3TYC, OM3TPN, OM6FM
RW9C	RW9CF, RA9DK
HA1CW	HA1CW, HG5OYL
RK3RWL	RN3RC, RU3RQ
SP9KRT	SP9ADU, SP9-1753
ZL6QH	ZL2BSJ, ZL2III(DK1II), ZL1BYZ, ZL1AZE
R1ANC	RW1AI, UA1PAC

Europe Top 10

UA0LCZ	all	high	5,371
UT7QF	all	high	15,872
HA8VK	all	high	6,825
RN6BN	all	high	6,437
YL2LY	all	high	5,846
OZ5DX	all	high	5,250
OM0WR	all	high	4,725
UR3IFD	all	low	4,588
LY1DR	all	high	4,320
7S2E	all	high	4,032
UR8LA	all	high	3,672

North America Top 10

N6RO	all	high	32,472
KU1CW	all	high	12,740
K3ZO	all	high	12,005
VE3DZ	all	low	9,024
VE1ZJ	all	high	7,942
VE4IM	all	high	6,734
W6RLL	all	high	5,530
N6ZZ	all	high	4,726
K3NK	all	low	4,046
VE7ASK	all	low	3,475

Oceania Top 10

KH6ND	all	high	4,449,375
VK4EMM	all	high	4,205,320
ZL1GO	all	high	2,431,968
VK2AYD	all	low	2,168,947
ZL2BR	all	low	2,127,066
VK4DX	all	low	1,469,320
VK5GN	all	high	1,250,044
ZL2AZ	all	high	1,134,980
ZL2CD	all	high	617,391
3D2/ W7DRA	all	low	582,015

Asia Top 10

UA0LCZ	all	high	11,220
JI3BFC	all	high	7,098
RA9MA	all	high	6,794
HL5UOG	all	high	6,280
UA9JKA	all	high	5,080
UA0SAD	all	low	4,000
UN5J	all	high	3,432
UN6P	all	high	2,184
JA7ARW	all	low	2,106
JA3YPL	all	low	1,976

South America Top 10

LU1EWL	all	high	3,159
PY2NA	all	low	40
PY7OJ	15M	low	24
PY4FQ	all	low	20

Africa Top 10

No Entrants

Non-Oceania Top 10

N6RO	all	high	32,472
UT7QF	all	high	15,872
KU1CW	all	high	12,740
K3ZO	all	high	12,005
UA0LCZ	all	high	11,220
VE3DZ	all	low	9,024
VE1ZJ	all	high	7,942
JI3BFC	all	high	7,098
HA8VK	all	high	6,825
RA9MA	all	high	6,794

Results Jack Files Contest 2003

from John Spooner VK4AJS, Contest Manager.

This year saw the number of entries for the contest drop compared with the number received last year. We were all hoping that we may have witnessed an increase but it wasn't to be..maybe next year? I would encourage anyone with any ideas or comments on how to improve the contest and in doing so encourage more participants to enter would be regarded as welcome. There were several stations who took part but did not send in logs.

VK4 Single Operator Phone: VK4NCW Daniel Peter De Voss of Asply Brisbane

VK4 Club Station: Bayside Amateur Radio Club

VK2 Single Operator Phone: VK2LCD Chris Meagher

VK3 Single Operator Mixed: VK3JS Ian Godsil

So there it is for 2003. I would like to congratulate the winners and to thank all that participated and entered their logs. The listed winners' certificates will be sent as soon as possible. As I mentioned before all ideas to make this contest more popular would be welcome.

Cheers de John VK4AJS

Results CQ WW DX SSB Contest 2002 (VKs only)

Single Operator

VK5GN	All Bands	3,612,654
VK8AA	"	2,447,474
VK2FHN	"	542,015
VK2APG	"	485,888
VK5KKD	"	295,472
VK2BCQ	"	108,582
VK4TI	"	42,625
VK4WPX	"	10,332
VK1MJ	7 MHz	4,950
VK3TZ	All Bands	1,189,440
VK4DX	"	524,552
VK8AV	"	98,050
VK4FJ	"	73,170
VK4BDJ	"	51,520
VK5EMI	"	6,938
VK4EJ	28 MHz	368,534
VK5LA	21 MHz	9,802
VK2AAC	14 MHz	4,042
VK4UC	7 MHz	38,934
QRP VK3VP	All Bands	5,625

Multi-Operator Single Transmitter

VK5ANC	All Bands	942,952

Multi-Operator Two Transmitters

VK1JDX	All Bands	145,008

Join WIA today

WIA is active in:

- QSL services
- Major role in amateur radio education
- Coordination of contests and awards
- Monitoring of illegal activity

"There is no denying that radio today still has all the magic that attracted people to the hobby all those years ago, when it first emerged onto an unsuspecting world."

Ernie Hocking, President
Amateur Radio April 2002

How to join WIA

- Through your local amateur radio club
- Through your Division (contact details on page 56)
- Contact WIA Federal Office (03) 9528 5962

Ross Hull Memorial VHF-UHF Contest 2003 – 2004

John Martin (VK3KWA), contest manager

The next Ross Hull Contest will be held between December 26, 2003 and January 11, 2004. The rules are unchanged from last year.

The contest is open to all amateurs, and all operating modes are permitted. Traditionally most activity has been on SSB or CW, although there has also been some FM activity. During the last year there has been quite an upsurge in the use of digital modes, and it will be interesting to see what effect this will have on contest activity this year.

But no matter what modes you prefer to use, summer is the time for DX, so give it a try and see what you can do. And please send in a log, so I can send you a nice certificate in return.

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

Duration

0000 UTC Friday December 26, 2003 to 2400 UTC Sunday January 11, 2004. In Eastern Summer Time, that is 11 a.m. on December 26 to 11 a.m. on January 12.

Sections

A. Best 7 UTC days nominated by the entrant.
B. Best 2 UTC days nominated by the entrant.

Entrants may submit logs for either or both sections. The nominated UTC days need not be consecutive. The overall winner will be the top scorer in Section A. If the overall winner has also entered Section B, his/her log will be excluded from Section B.

General rules

One callsign and one operator per station. One contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted. No contest activity is permitted below 50.150 MHz. Recognised DX calling frequencies must not be used for contest calls, exchanges or liaison. Suggested procedure is to call on .150 on each band, and QSY up if necessary. All rulings of the contest manager will be accepted as final.

Penalties

Minor errors in distance estimates or calculations may be corrected and the score adjusted. Contacts made on recognised calling frequencies will be credited if the entrant provides an explanation of why it was not practical to use another frequency. Otherwise such contacts will be disallowed. Persistent unjustified use of calling frequencies or false log entries will lead to disqualification.

Contest exchange

RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. For difficult propagation modes such as meteor scatter, exchange of a total of two digits is sufficient for a valid contact.

Scoring

For 2 metres and above, one point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 - 199 km: 2 points, etc).

For 6 metres only, contacts below 1000 km: as above. Contacts from 1000 km to 2400 km, 2 points regardless of distance. Contacts over 2400 km, 20 points regardless of distance.

The band multipliers are:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Logs

Logs must cover the full contest period and contain the following for each contact:

- Date and UTC time.
- Station location (if operating portable).
- Specific FREQUENCY (not just band) and callsign of station worked.
- Approximate location or grid locator of station worked.
- Reports and serial numbers sent and received.
- Estimated distance worked and points claimed, including the band multiplier.

Separate scoring columns for each band would be helpful.

Cover sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered, and a list of the UTC days to be scored.
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Please use the following format for your scoring table. If you wish you can cross-check by adding the daily totals across the table, but please make sure that you include the separate band totals.

Date	6 m	2 m	70 cm	23 cm	etc
Day 1	xxx	xxx	xxx	xxx	xxx
Day 2	xxx	xxx	xxx	xxx	xxx
etc.					
Total	xxx +	xxx +	xxx +	xxx +	xxx = xxx (Grand total)

Continued on page 50

HF Predictions

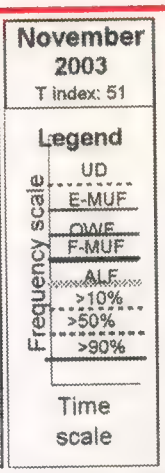
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

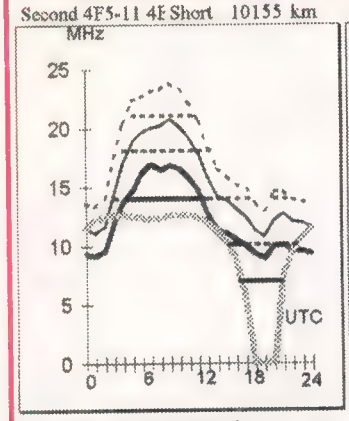
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

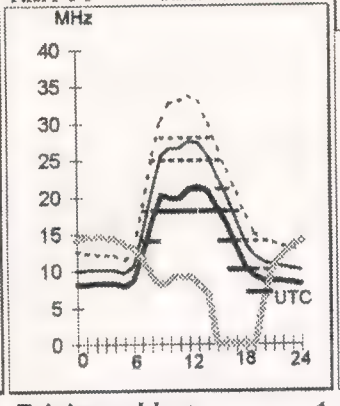
November 2003
T index: 51



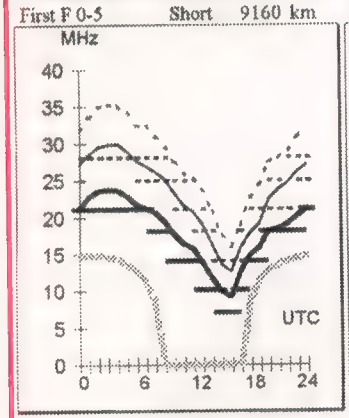
Adelaide-Capetown 226
Second 4F5-11 4E Short 10155 km



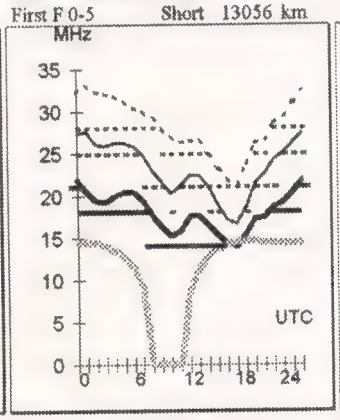
Brisbane-Dublin 335
First F 0-5 Short 16670 km



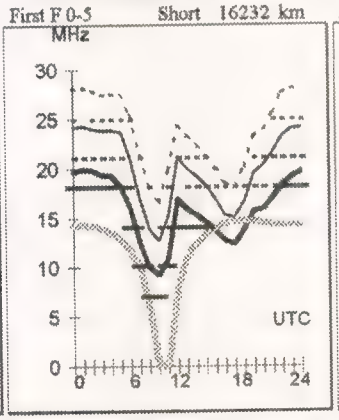
Adelaide-Honolulu 57
First F 0-5 Short 9160 km



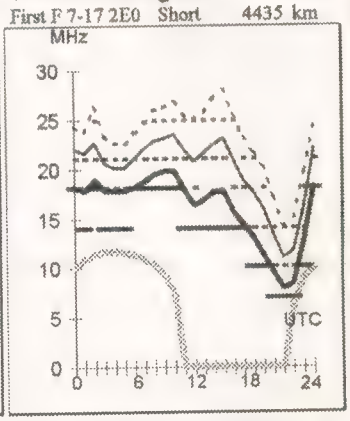
Brisbane-Lima 1
First F 0-5 Short 13056 km



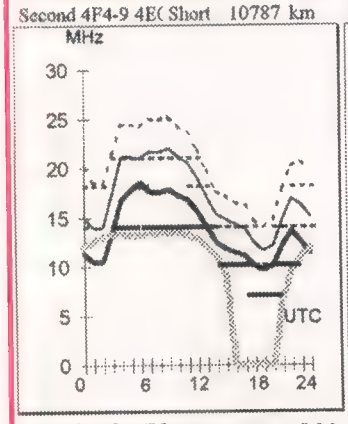
Canberra-Barbados 123
First F 0-5 Short 16232 km



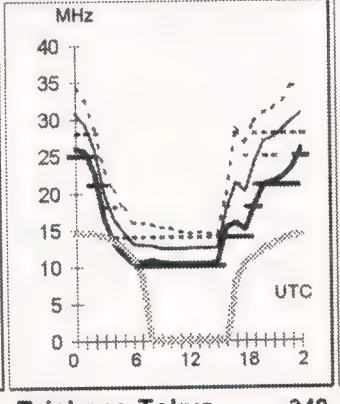
Darwin-Bangkok 310
First F 7-17 2E0 Short 4435 km



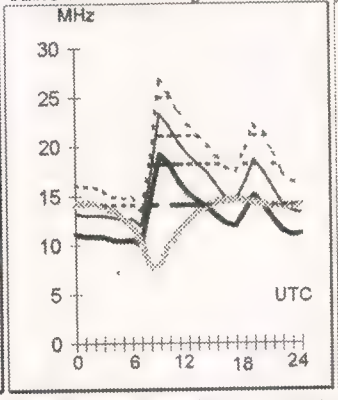
Adelaide-Lusaka 246
Second 4F4-9 4E(Short 10787 km



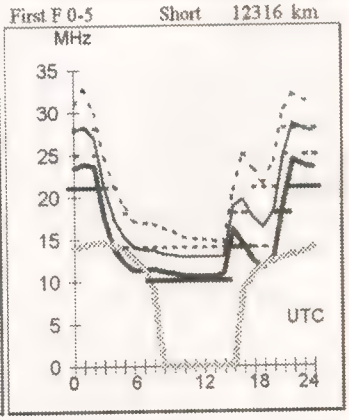
Brisbane-Seattle 44
Second 4F 2-6 4E Short 11646 km



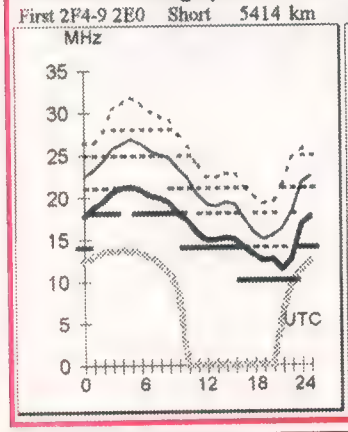
Canberra-London 136
First F 0-5 Long 23042 km



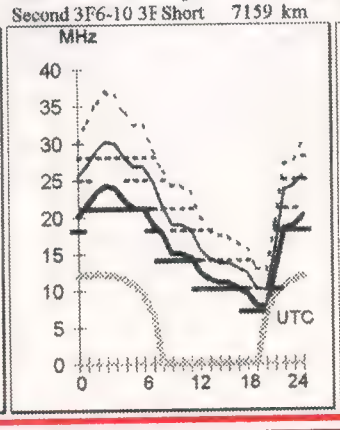
Darwin-San Francisco 54
First F 0-5 Short 12316 km



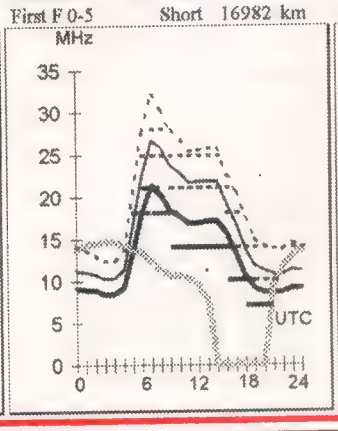
Adelaide-Singapore 311
First 2F4-9 2E0 Short 5414 km



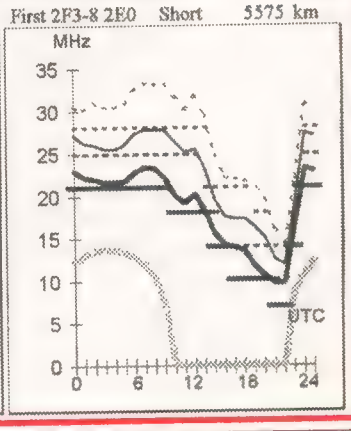
Brisbane-Tokyo 348
Second 3F6-10 3E Short 7159 km



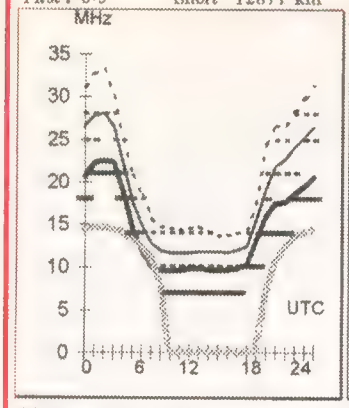
Canberra-London 316
First F 0-5 Short 16982 km



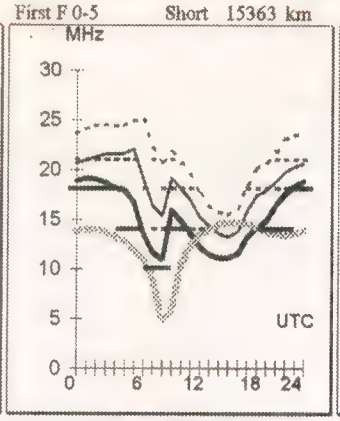
Darwin-Seoul 356
First 2F3-8 2E0 Short 5575 km



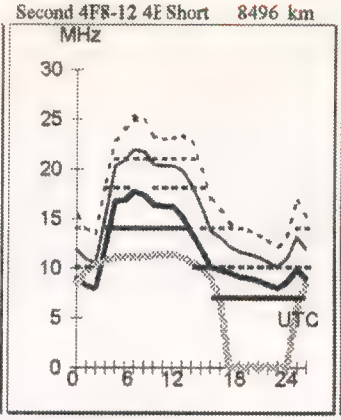
Hobart-Anchorage 28
First F 0-5 Short 12871 km



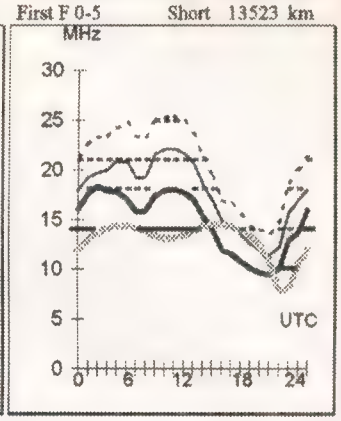
Melbourne-Surinam 145
First F 0-5 Short 15363 km



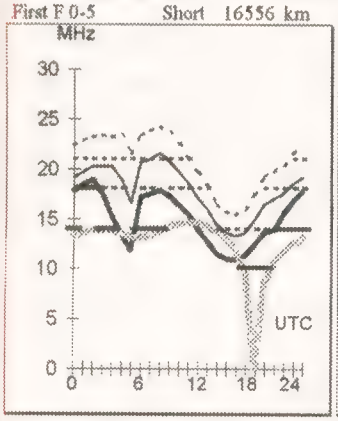
Perth-Harare 257
Second 4F8-12 4E Short 8496 km



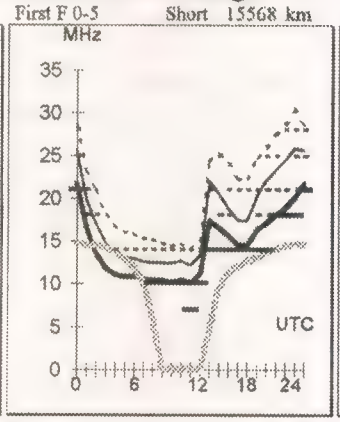
Sydney-Rio de Janeir 203
First F 0-5 Short 13523 km



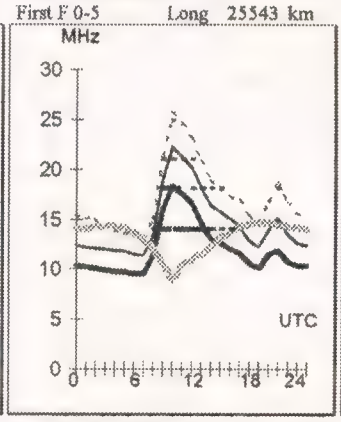
Hobart-Dakar 209
First F 0-5 Short 16556 km



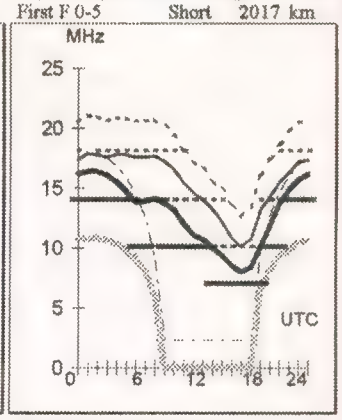
Melbourne-Chicago 67
First F 0-5 Short 15568 km



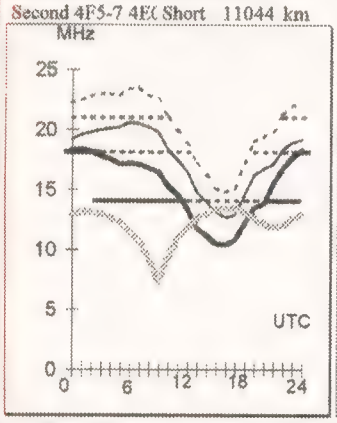
Perth-London 133
First F 0-5 Long 25543 km



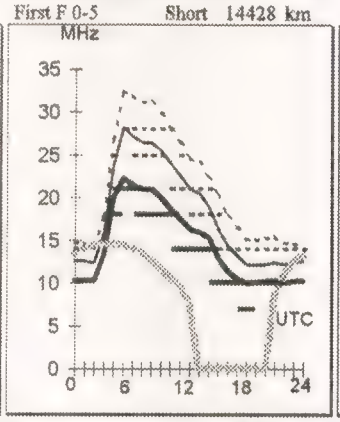
Sydney=Invercargil 139
First F 0-5 Short 2017 km



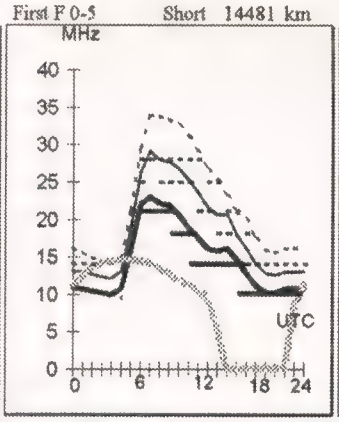
Hobart-Montevideo 161
Second 4F5-7 4E(Short 11044 km



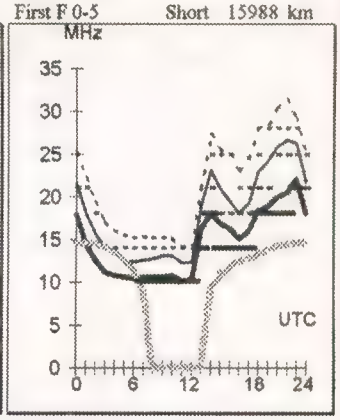
Melbourne-Moscow 316
First F 0-5 Short 14428 km



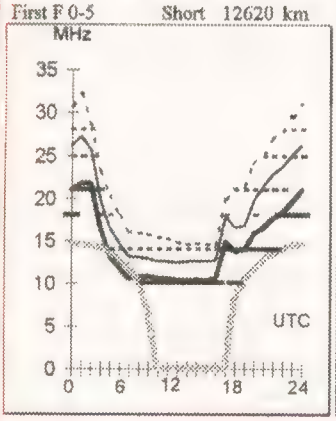
Perth-London 313
First F 0-5 Short 14481 km



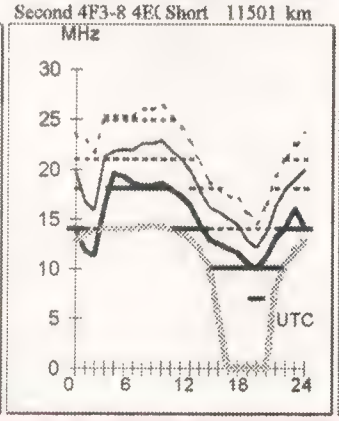
Sydney-New York 66
First F 0-5 Short 15988 km



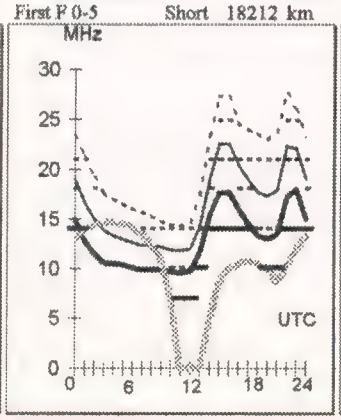
Hobart-Vancouver 49
First F 0-5 Short 12620 km



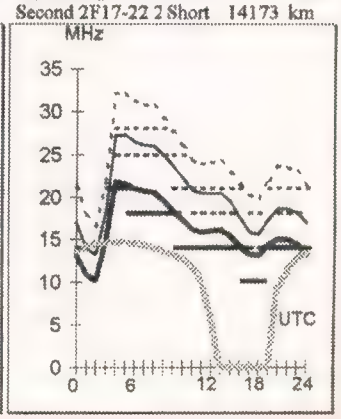
Melbourne-Nairobi 258
Second 4F3-8 4E(Short 11501 km



Perth-Ottawa 30
First F 0-5 Short 18212 km



Sydney-Tel Aviv 287
Second 2F17-22 2 Short 14173 km



Continued from page 47

A sample cover sheet has been posted on the VK-VHF email reflector, and copies can also be obtained from the email address given below.

Deadline

Paper logs may be posted to the Manager, Ross Hull Contest, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au. The following log formats are acceptable: ASCII text, Office 97 RTF, DOC, XLS or MDB. If you use Office 2000, please save the files in Office 97 format.

Logs must be received by Friday, February 6, 2004. Early logs would be appreciated.

Note on calculating distances

Absolute accuracy is not required. All you need to know is whether the other station is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using a computer program which can be obtained by sending an email to the address given above.

ar

Summer VHF-UHF Field Day 2004

John Martin (VK3KWA), contest manager

The Summer VHF-UHF Field Day will take place on the weekend of January 17 and 18, 2004. Logs will be due on February 9, and entrants are also invited to include any comments or suggestions about the rules.

Dates

Saturday and Sunday January 17 and 18, 2004.
Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.
Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

A: Portable station, single operator, 24 hours.
B: Portable station, single operator, 6 hours.
C: Portable station, multiple operator, 24 hours.
D: Portable station, multiple operator, 6 hours.
E: Home station, 24 hours.

Single operator stations may enter both Section A and Section B. If the winner of Section A has also entered Section B, his log will be excluded from Section B. The same applies to the winner of Section C if the station has also entered Section D.

General rules

A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Operation may be from any location, or from more than one location. You may work stations within your own locator square. Repeater, satellite and crossband contacts are not permitted.

One callsign per station. If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other. Stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make any contest exchanges using callsigns other than the club or group callsign.

No contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for any contest activity. Suggested procedure is to call on .150 on each band, and QSY up if necessary.

Contest exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator.

Repeat contacts

Stations may be worked again on each band after three hours. If the station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Scoring

For each band, score 10 points for each locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time, frequency, station worked, serial numbers and locator numbers exchanged, points claimed.

Cover sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table. In this example the operator has operated from one locator and worked four locators on each band:

ARDF

Mark Harrison, VK3BYY
266 Nell St West, Watsonia, Victoria, 3087
Email: vk3byy@nerg.asn.au

Australia will host the 5th IARU Region 3 ARDF Championships from 28th November to 3rd December. More than 100 competitors and officials, mostly from overseas, will gather in Ballarat, Victoria, for some keenly fought competition.

The WIA's Victorian Division is hosting the championships together with the Victorian ARDF Group. Ballarat and other Melbourne amateur radio groups, as well as volunteers from the Victorian Orienteering Association, will provide much needed support.

This is only the fifth championship to be held in Region 3, however it is not the first for Australia - back in 1996 the second championship was held in Townsville. Since then Region 3 championships have been held in Mongolia and Korea. Winners from this year's events will go on to compete against the other two IARU regions at the World Championships in Brno, Czech Republic next September.

Ballarat University's Mt. Helen campus, set in 110 hectares of natural bushland near Ballarat, provides an ideal ARDF venue. Adjacent to state parks and forests, it has comfortable facilities, catering, and accommodation. Ballarat is only 90 minutes from Melbourne's International Airport, in the heart of Victoria's historic goldfields tourist region.

What is involved in running an International ARDF event? Advertising around the world, processing the registrations, shepherding visitors through airport red tape, organising transport both to Ballarat and around the actual ARDF courses. Naturally the organisers want to keep guests well fed and comfortably accommodated. Then there are the opening and closing ceremonies and awards presentations, along with the traditional banquet with entertainment of an Australian flavour.

Finally of course there are the actual ARDF events themselves.

A location with interesting terrain must be found so that the total optimal distance travelled, visiting all five transmitters, is between 6 and 10 km. The location must then be mapped carefully. The detailed topographical maps need to indicate features like undergrowth density, natural and man-made landmarks, and all safety hazards. Fortunately the Victorian Orienteering Association has cartography experts that make excellent maps! All of this information is kept secret.

On the day, all the transmitters are placed out in the field, where they will be observed discreetly by IARU officials and local representatives to make sure there is no cheating.

Volunteers help set up and run the Starting Area, which is an elaborate arrangement of partitioned off areas that hide the view of the course. All competitors are corralled and their directional receivers (sniffers) are impounded before the event starts. Competitors receive the official map just before picking up their sniffer and being released onto the course. A group of competitors, consisting of one person from each category, is released onto the course every five minutes, synchronized to the start of transmitter #1. All these precautions prevent competitors at the start from gaining any clues about the locations of transmitters before being released.

Eventually competitors end up at the Finish gate (hopefully!), located well away from the Start gate. The contestants' electronic "Sports ID" tags are read by computer to confirm which transmitters they found, along with elapsed times. The competitors also receive a printout of their times for each leg as a record of their personal performance.

Regular meetings of the team leaders, officials, and jury meetings are held to keep everybody informed and resolve any protests that may arise from the competitions.

Finally, a special event station with the callsign VI3ARDF will be run by the Ballarat Amateur Radio Group (BARG) to keep visitors in touch with home and to mark the occasion with a special QSL card. The four letter callsign creates a little history of its own, being the first to be issued in Australia.

Volunteers are needed in every capacity, including for the Australian team! Visit the Victorian ARDF Group's web page at www.ardf.org.au where there are more details on the ARDF championships as well as for local events held throughout the year.

Further enquires can be directed to:
Mr. Jack Bramham, VK3WWW,
Federal ARDF coordinator,
Wireless Institute of Australia
vk3www@alphalink.com.au

Contests – *continued from previous page*

Band	Locators Activated (10 pts each)	+	Locators Worked (10 pts each)	+	QSOs (1 pt each)	x	Multiplier	=	Band Total
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
							Overall Total	=	**680**

A sample cover sheet and scoring table has been included in the postings on WIA web sites and the VK-VHF e-mail reflector. Copies can also be obtained from the e-mail address given below.

Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au. The following log formats are acceptable: ASCII text, MS Office RTF, DOC, XLS or MDB. If you use Office 2000 or later, please save the files in Office 97 format.

Logs must be received by *Monday, February 9, 2004.* Early logs would be appreciated.

VHF/UHF – An expanding world

David Smith VK3HZ – vk3hz@wia.org.au
Leigh Rainbird VK2KRR – vk2krr@telstra.com

Weak Signal

David Smith - VK3HZ

The first VK/ZL opening for the season occurred on 24/25 September. Nick ZL1IU on the northern tip of the North Island reports working VK4LC, VK2EI and VK2DVZ on 2 m and VK4AFL and VK2DVZ on 70 cm. Signals peaked to S7-8 on both bands.

There has also been some auroral activity, although there are no reports of contacts. Auroral propagation was heard on some aircraft net stations from this QTH on the morning of 19 September. At the time, an auroral alert was current on the IPS Space Weather site (www.ips.gov.au/Main.php?CatID=2).

Wally VK6KZ reports that the Mt Barker beacons are now operational on 3 cm and 70 cm. Mt Barker [OF85ti] is about 50 km north of Albany. The WA VHF Group Inc. commissioned a 200 mW beacon on 10,368.564 MHz on 5 October. An exciter and keyer in the hut feeds an FSK signal at about 518MHz up the coax to a multiplier chain and PA mounted at the back of a 380 mm dish. The dish has a bearing of 106 degrees (i.e. towards Melbourne - well we can dream, can't we?). The beacon has been heard at Albany by VK6KZ/p and VK6WG. It has also been heard in the Stirling Range (north east of Mt Barker) by VK6ZWZ. Additionally a beacon on 432.564 MHz was commissioned on the same site and this has close to 50 watt split into two 10 element yagis - one towards Melbourne and the other towards Perth. It is being heard quite consistently in Perth under present conditions (about 340 km). The WA VHF Group hopes to replace the Southern Electronics Group 2 metre beacon at Albany - now withdrawn from service - with one at Mt Barker. Also, don't forget to look for VHF Group beacons on 144, 432 and 1296 (all nnn.562 MHz) at Augusta (Cape Leeuwin). Full details of WA VHF Group beacons may be found at vhf.worldsbest.com.au/beacons.htm.

Adam VK4CP has been adding some features to the VK/ZL VHF-UHF propagation logger (www.vk4cp.com/vklogger.php). There is now an operator information page on which amateurs can add details of their station, including grid locator, which can be quite handy. There is also a page for people to add their current gridsquare standings. This is not intended to replace Guy VK2KU's official tally on the NSW VHF DX Group site (http://www.vhfdx.oz-hams.org), but simply a means to keep track of gridsquare standings in the busy months between official updates.

Digital Modes

Rex Moncur – VK7MO

It's good to hear of some digital activity over in the west. Craig VK6JJJ in Karratha in the north west of Western Australia reports that he has been trying to raise some interest in Perth in activity on FSK441, to no avail. The path is about 1200 km, which makes it about optimum for FSK441. Recently he set up a sked with Nigel VK6KHD and out of about six attempts, they have only managed to get one ping through (Karratha to Perth). They are now making some changes in the hope of establishing a regular contact. Anyone interested in joining them should listen at 7 am local time on 144.230.

Recently, I undertook a 432/1296 MHz Digital DXpedition through southern central NSW. From Mildura, I travelled up through Broken Hill then across to Ivanhoe, West Wyalong, Grenfell and Young, finishing at Bathurst. 36 contacts were made with stations worked including VK3AXH, VK3CY, VK3KQB, VK3HZ, VK3BRZ, VK3FMD, VK3AFW, VK3XLD and VK3KAI.

One of the most interesting things was that the increased sensitivity of JT44 allows one to see aircraft reflection (equivalent to normal radar back or side scatter), which is typically around -15 to -25 dB compared to aircraft diffraction which is typically much stronger and allows SSB contacts. Diffraction is characterised by strong signals and durations of just a minute or so as the aircraft crosses the path where reflection is weaker, but can run on for 10 or 20 minutes and has significant QSB. Reflection occurs much more frequently than diffraction and while aircraft reflection was apparent around 50% of the time diffraction was present for just a few percent.

The differences between the various types of propagation show up more clearly on 432 than 144 and this is to be expected as in relative terms tropo scatter losses increase with frequency. Aircraft reflection is roughly constant and aircraft diffraction losses reduce with frequency (providing you are in close alignment in both the vertical and horizontal planes). Further tests on 1296 will be useful in differentiating the three modes.

Aside from the three types of propagation listed I did hear three meteor pings over the many hours of listening the best one being a 2.8 second burn.

I found that it is impossible to receive a JT44 signal if more than one station is Tx-ing even if one is 10 dB stronger than the other. This means that successful JT44 Expeditions do require a lot of consideration by operators for others and I was pleased that people tried very hard to be fair. We will need to think a bit more about the best procedure, but if it's clear the DX station has started to work another station, you should cease Tx-ing until the DX station calls CQ. How to resolve the issue of two stations responding to a CQ call is more complex but my inclination is that stations who are getting good copy (better than -15 dB) should be prepared to respond on say only every second or third period to give a weaker station a chance of being identified. Note that once one sends a signal report one keeps to this even if a stronger signal is received later.

2 m & 70 cm FM DX

Leigh Rainbird - VK2KRR

Now approaching the warmer months, we should see much better Tropospheric DX conditions on 2 m and 70 cm. For those of you who have been waiting all winter to get your ducting fix, it's now time to dust off the microphone, plug in the antenna.... and wait. Yes, DX on 2 and 70 can be a bit of a waiting game, often many weeks are spent, just waiting and listening for any possible openings without any luck at all. But this is what makes the higher bands all the more exciting. You might have coverage of 100 km for weeks, then all of a sudden something comes floating through from 400 km then 600 km! You will find optimum times to catch summer DX activity are from around 5.30 am to 8.30 am local time. If you're keen, I have noted a good percentage of activity beginning around 2 am local time. This research is taken from inland N.S.W and may vary with location, especially coastal areas.

A mixed bag of DX to report on for the month of September. Big news of the month was an international duct opening reported from north VK4, and one major opening in the south eastern states, along with a number of smaller openings.

To start the month off, a major opening began in the evening of the 2nd, with east west ducting noted from here to the Adelaide area. This was rather weak and disappeared later in the evening, to re-appeare around 4 am on the 3rd, still weak and covering more areas north of Adelaide such as Port Pirie, Port Augusta and Cowell (961 km), also further north again to Broken Hill. That evening it was wide spread and much better signals were to be had, even on 70 cm.

VK3FIQ Geoff in Stawell was making it to Lobethal VK5RAH very well. Brian VK5ZMB in Gawler was reaching across to Ararat and Shepparton. Conditions were so good that I was able to access the Port Lincoln repeater VK5RAC (1019 km) where I spoke to VK5KFB Rod, located near Summertown. Rod was a decent distance from the repeater himself. A number of VK5 70 cm devices were also worked from here, Crafers, Barossa Valley, Mt Terrible and Summertown (779 km).

The following morning, the 4th, stations in the western areas were having more luck working across to the east. Again, Brian VK5ZMB was working well into Shepparton VK3RGV 146.650 and Yarrawonga VK2RWB 147.200. Shane VK5NRV at Woodside was making it quite easily into VK2RWG the Wagga repeater, a good 750 km. I think Shane was also able to work a number of other repeaters in the eastern areas. Garry VK3KYF in Mildura was also working into Wagga.

On the 7th and 8th of September, I noted some good conditions with the furthest distance being to Mt Gambier VK5RMG on 146.900. Signal was up to S9+20 dB. Its always good to make it in to Mt Gambier because the operators there are always interested to hear from you as they are all very interested in VHF and UHF DX themselves. And living in probably one of the best locations to work across to VK6, it's no wonder they are keen.

On the 9th Mike VK4JOO in Gladstone reports, Wayne VK4ZRT was the first to notice the abnormal conditions on 2 metre and managed to talk through the Hervey Bay repeater around 9 am on the 9th. He also noticed that the Blackdown tableland repeater was accessible. Soon after this Wayne was able to work into the Mackay repeater on 147.00. I was able to trigger the Mackay repeater at this stage but when I tried to make contact with VK4JWG, I was dropping in and out of the repeater.

On the morning of the 10th, Felix VK4FUQ in Ingham, Nth QLD, was able to work to VK4RHR, 146.925 Hodgson Range (491 km), Felix spoke with Mark VK4KMR in Dysart and Harry VK3LE. Later, John VK4JKL in Cairns also called in on the same repeater (686 km).

Mike VK4JOO reports, in the evening of the 11th about 8.30 pm, Wayne VK4ZRT in Gladstone was able to hear the Gympie repeater on 146.625. No sign at my QTH but I was keen to keep trying. About 9.00 pm I worked VK4HNL (Nev) in Hervey Bay via the Gladstone Repeater. He thought initially that he was getting into Gympie, which is on the same frequency, and was quite surprised when I told him he had the local Gladstone repeater. Later Wayne managed to trigger the Hervey Bay repeater to complete the loop.

On the evening of the 13th and the following morning, Mike VK4MIK at Malanda, south of Cairns had conditions to the south as far as the Mackay repeater (550 km) VK4RMK.

Some interesting conditions were noted on the 17th around the north Queensland coastal areas. Felix VK4FUQ reports, from about 1930 local, there was good access into the Mackay repeater on 147 MHz from here in Ingham. Mike VK4MIK on the tablelands also accessed this repeater with a collinear vertical. Interestingly enough, he was not able to access Townsville, which is closer. In fact, later in the evening, something rather strange was observed. When Townsville area stations tried to access the Mackay repeater on 147.000 they could not, but they found they could access one of the P29 (New Guinea) repeaters on the same frequency! My beam was looking south, but I could just hear "something in the noise", off the back of the beam. My rotator is of the "Armstrong variety", and too difficult to reposition at night.

Again on the 18th Felix VK4FUQ gave another interesting report. Things got underway a little later last night, with some international DX, when at around 1200 hours (10 pm local), Jim P29JB in New Guinea worked into the Townsville 2 m repeater with good signals. He was using around 35 watts and a 4 element Quad. Jim advised that Australian FM broadcasters were very strong into his location last night, which was an excellent indicator of good VHF propagation. The estimated distance was around 1200 km. No simplex contact was attempted. Stations who worked Jim P29JB were myself, VK4FUQ, John VK4JKL in Cairns, Tony VK4TJS in Townsvillle. Around the same time, there was once again some weak coastal ducting down to Mackay, but the best propagation was into P29.

Thanks to VK4MIK Mike, VK4JOO Mike and VK4FUQ Felix for the great reports.

If you happen to copy some good 2 and 70 FM DX over the coming months why not drop me a note at vk2krr@bigpond.com. Be interesting to hear from you. Cheers for now and good luck with the DX.

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classifieds

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• **PALEC VCT-3,** valve and circuit tester. Good physical condition. Working condition unknown. OFFERS or trade. Mick VK2BZE. Phone 0242976406 or mickh1@swiftdsl.com.au

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WANTED NSW

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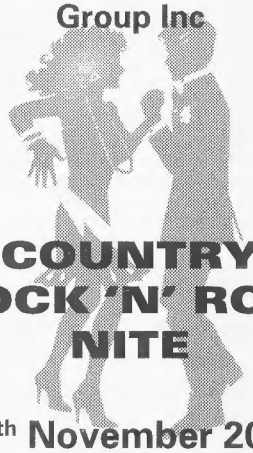

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GPO Box 600, Canberra ACT 2601

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Broadcast schedules All frequencies MHz. All times are local.

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga.
VK1 Home Page *http://www.vk1.wia.ampr.org*
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VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 9432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644 (NSW only)
e-mail: *vk2wi@wiansw.org.au*
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VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

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President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	David Gulley	VK4DCG

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland:- 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.6 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbanes Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from Sth East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au
Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.
Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Bruce Hedland-Thomas	VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website
Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.wia.org.au/vk7*
email: *vk7dg@wia.org.au*

President	Phil Corby	VK7ZAX
Secretary	Dale Barnes	VK7DG
Treasurer	Dale Barnes	VK7DG

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNW, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 in Hobart area.
Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

DX Operations on a grand scale at V2 Antigua and Barbuda

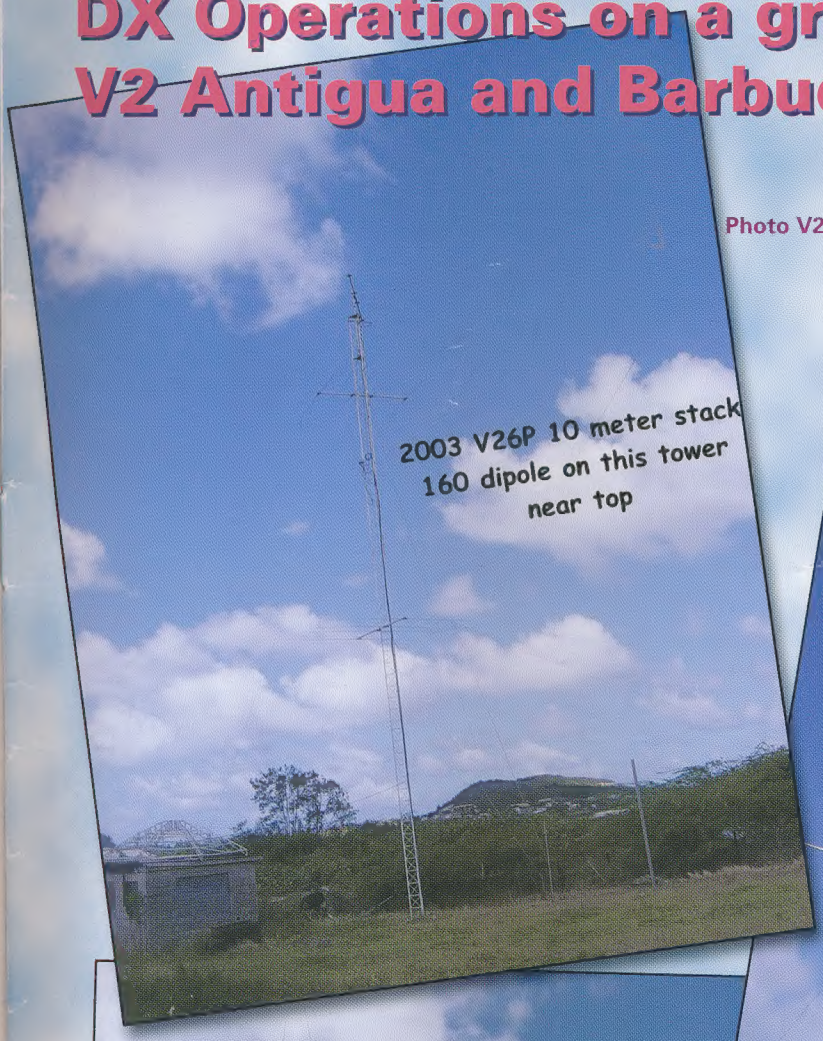

Photo V26P_10 Ten metre stack at V2

Photo V26P_15. Fifteen metre stack at V2 with the 20 metre stack in background. The 3 element 80 metre wire beam pointed at EU is between these towers

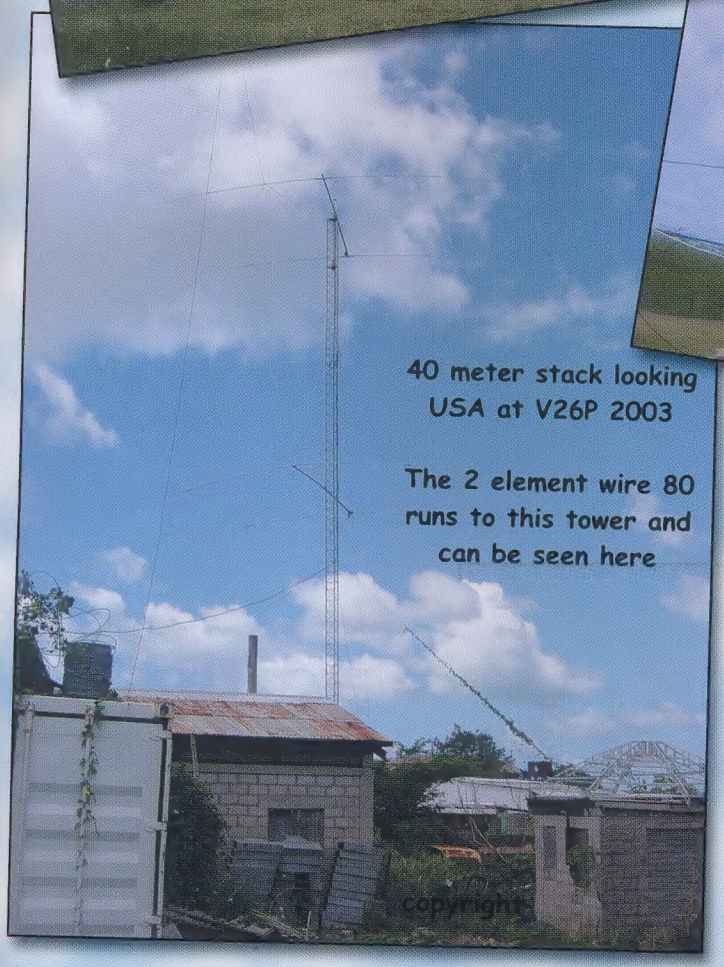

Photo V26P_80 Forty metre stack at V2

V2 operations by W5AJ covered ARRL DX SSB 1999, 2000 & 2003. The operations took place at the V26B super station W5AJ operator. KD5AAU traveled with me in 1999 & 2000 to tour the island
The 1999 and 2003 operation from V26P was SOAB LP. The 2000 operation was High Power using MLA2500B with tuned input

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